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Gleanings in Bee Culture

Vol. LIX No. 1 January, 1931

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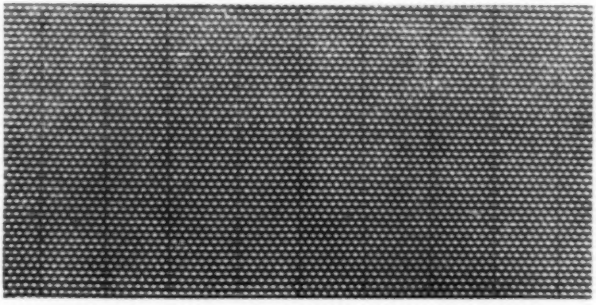

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Leahy Manufacturing Company

Higginsville, Missouri

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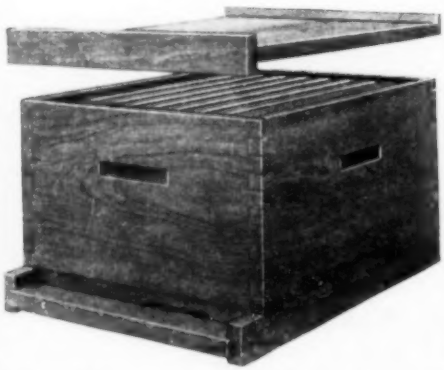

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Honey Markets

U. S. GOVERNMENT REPORT

Information from Producing Areas (first half of December)

CALIFORNIA POINTS: Southern California—The results of the rains that have already fallen are seen in the green growth that is springing up over the hills and valleys and in the fact that bees are bringing in new pollen. Demand for honey for export is extremely light and little demand for domestic sale reported. Large amounts of honey still remain in the hands of beekeepers in all districts, with the tone of the market slightly weaker, especially on darker honeys. Some beekeepers are said to be showing more willingness to let their honey go at these prices, but many continue to hold in the hope that the market will improve as the season progresses. Some large buyers are said to be temporarily out of the market until they clean up supplies now on hand. Beekeepers are reported to be receiving, per lb., about as follows: Orange, water white, 7¾-8c; small lots direct to bottlers high as 9c; white to extra white, 7½-7¾c; few, 8c; sage-buckwheat, extra light amber, 5-5¼c; light amber, 4½-4¾c; few 5c, including one carlot at 5c; few lots higher; 1 car sage-mesquite, 4 1-10c per lb.; Imperial Valley light amber alfalfa, 3½c-4c; Coachella Valley light amber tamarisk, offered at 3-3¾c. White sage comb has sold at $6.25 per case. Beeswax is dull and unchanged at 18-20c per lb. for average run wax, some No. 1 up to 23c per lb. Central California—Few sales reported, with prices slightly weaker. Light amber alfalfa-cotton has brought 3¾-4c per lb.; one sale white orange reported at 6c per lb. Northern California—Rainfall is said to be deficient, but bees are in good condition. The market is very dull, but some beekeepers report that there is a slightly stronger tone to the market. Sales reported of extra light amber alfalfa, ton lots 5c per lb.; light amber, 3½-4c per lb.; white thistle, 6½c; extra light amber thistle, 6c; light amber thistle, 4-5c; few 60s, 5½c; amber mixed flowers, 3½-3¾c; few, 4c; light amber mixed flowers, 4c per lb. Beeswax, 18-20c per lb.

PACIFIC NORTHWEST—West of Cascades. The weather has been colder than normal, and bees are not flying much except during the warmest part of the day. They are, however, wintering well. There has been a marked deficiency of rainfall, but heavy fogs have been common. Extracting has been practically completed. The market trend is slightly weaker, but honey is moving out gradually. Sales of white to light amber sweet clover and alfalfa, 6-8c per lb.; few higher; white fireweed, 9½c per lb. Comb honey reported sold at $4.50 per case for white, $4.00 for amber vetch and clover. East of Cascades—Cold, rainy weather has kept bees in the hives. Honey is moving very slowly and some large beekeepers are consigning their crops. Beekeepers find that for small lots selling locally is proving more profitable than shipping away. Alfalfa and sweet clover comb, No. 2, reported sold at $3.00 per case.

INTERMOUNTAIN REGION—Several carlots of honey have been reported moving during the past few weeks, but in general movement has been in smaller lots. Scattered areas report that most of the honey in their sections has been disposed of, but many commercial beekeepers continue to hold in the hope that prices may improve. So far, however, the market has not strengthened. Many beekeepers who had originally packed their honey in 60-lb. cans are now repacking into 5 and 10 lb. pails, and selling near home at a substantially higher price than they could have obtained for honey in 60s. The combination of low prices and short crop has caused widespread discouragement, and many beekeepers would gladly sell if they could find buyers for their colonies and equipment. Several carlot sales of white to water white sweet clover and alfalfa have been reported recently at 5½-6c per lb.; other large lots, 4¾-9c per lb.; 60s, 8-10c; small pails, 8¾-11c per lb.; light amber to extra light amber, large lots, 4½-7½c per lb.; small pails, 8-10c per lb. Bulk comb has moved at 11c per lb., in small pails. Beeswax, 18-21c per lb.

ARIZONA—Rain fall has been negligible for some months, and much more is needed. Bees generally have ample stores, as they go into winter quarters. Probably 4000 to 5000 colonies were killed in September by poison sprayed on cotton to kill worms, it is reported. Local demand for honey is fair, though chiefly in small lots; very little interest in carlots. Prices vary greatly, but range generally, it is reported, 3¾-4½c per lb. for light amber alfalfa, 4½c per lb. for light amber cotton. Country run yellow beeswax has sold at 20c per lb.

SOUTHWEST TEXAS—Frost has now destroyed all plant bloom, except in the southern portion of the area, where bees work occasionally on live oaks and broom weed, and because of the cold weather bees remain in a semi-clustered condition much of the time. Colonies which were fed and properly taken care of are going into winter in fine condition, with plenty of young bees and from one to three frames of sealed brood, but many beekeepers are discouraged and have let their bees go, so that heavy winter losses can be anticipated. The ample moisture in the ground has started horsemint and other plants, and there appears to be "a fine season in the ground." Few small pails of extracted reported sold at 8c per lb.; 12c per lb. for small pails of comb honey.

PLAINS AREA: Red River Valley of North Dakota and Minnesota—The weather has been so unusually mild that bees packed outdoors have had several good flights recently. It has been cool enough, however, so that cellar-wintered bees have not become restless, and recent inspections indicate that they are wintering nicely. Local demand for honey in glass and in small pails is reported satisfactory, though at low prices. Most beekeepers are fairly well cleaned up of honey. Sales reported of ton lots white extracted at 6¾c per lb.; one car in 5-lb. pails, 7½c per lb.; white comb honey, No. 1, $3.60 per case. Light beeswax reported sold at 22c per lb. South Dakota—Bees went into cellars the heaviest in 10 years, it is reported, and clover plants look exceptionally well for next season. The market price is said to be weakening slightly, and beekeepers in their endeavor to move their crop are said to be cutting prices. Sales reported of small pails, white extracted at 9-12c per lb.; No. 1 to fancy white comb, $3.12-4.80 per case. The South Dakota state law does not permit unwrapped honey to be displayed in the open by the retailer, and the attractive appearance of wrapped comb is causing it to be sold fairly rapidly, but some extracted still remains on hand. Iowa—Warm, sunshiny weather has given bees frequent flights during this period, and some beekeepers are waiting for colder weather before placing their bees in cellars. Snow would be of benefit to the clover plants. Demand for large lots in 60-lb. cans continues very light, but honey is moving well locally and in small containers. Ton lots of white to water white extracted sold at 6-6½c per lb.; small pails, large lots, 7¾-8c per lb.; dark baking grade honey, 4c per lb. Beeswax reported to be selling at 18-20c per lb. Kansas and Nebraska—Demand for honey is light, as is usual just before the holidays, but a large volume has moved already in local sales. Bees have now all been packed for winter. Ton lots sales extracted reported at 7c per lb.; 60s, 8½-10c; small pails, 10c; few higher. Beeswax, 18c per lb. for average yellow, 20c per lb. for light. Few sales white comb in small lots reported at $4.00 per case. Missouri—Honey is moving fairly well locally, but in a wholesale way the sale of Missouri honey is restricted by shipped-in honey sold at low prices. Sales reported of white sweet clover extracted at 8½c per lb.; fancy white comb, $4.25 per case.

SUMMARY.—The weather has been relatively mild during the past two weeks, and bees have been able to fly occasionally except in the Intermountain Region. Rain and snow have been helpful to clover plants over most of the country except the North Central States, where considerable freezing and thawing has occurred because of lack of snow covering. Most colonies which are to be given attention have now been packed for winter, or placed in cellars. Demand for honey in large lots has been light, and in fact lighter than usual for this period of the year. Many large commercial beekeepers, who usually sell in 60-lb. cans, have either disposed of their honey at low prices or are holding it in the hope that the market will strengthen. Other large beekeepers, as well as many smaller
(Continued on page 57.)

Monthly Report of Honey Producers

Early in December we sent the following questions to honey producers: 1. What per cent of honey produced in your locality has left the hands of the producers? 2. At what prices has honey been sold, or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per lb.? (b) comb honey, fancy, or No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy or No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy or No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair, or rapid. 6. How much of this season's crop is being sold locally in your locality? Give answer in per cent. 7. What is your estimate of the prospects for 1931, considering the present condition of the bees and the honey plants, as compared with a five-year average for your locality. Give answer in per cent. The answers received are tabulated, as follows:

State. Name.	Pct. sold.	Large lots. Ext.	Large lots. Comb.	To grocers. Ext.	To grocers. Comb.	Retail Ext.	Retail Comb.	Movement.	Sold local.	Pros. 1931
Ala. (J. M. Cutts)	95	.06½				$.80	$.25	Fair	90	100
Ala. (J. C. Dickman)				.70		.85		Slow	40	80
Ark. (J. Johnson)	50			.90	4.80	1.00	.25	Slow	100	80
Ark. (J. V. Ormond)	95	.10	4.40		4.40	1.12	.23	Slow	100	50
Calif. (L. L. Andrews)		.06½						Slow	2	60
Calif. (M. H. Mendleson)						.95	.25			
Colo. (Otis E. Adcock)	50	.07¼	3.25	.50	3.50	.60	.19	Fair	80	90
Colo. (J. A. Green)	85	.05		.55		.75		Fair	25	100
Conn. (Allen Latham)	35			1.00	5.50	1.25	.33	Fair	90	100
Conn. (A. W. Yates)	75	.07½	4.00	.85	6.50	1.25	.35	Slow	100	100
Fla. (C. C. Cook)	50	.05		.50		.60		Slow	50	75
Fla. (Harry Hewitt)	80			.55		.75		Fair	50	100
Ga. (J. J. Wilder)	60	.08½		.75		1.00		Fair	7	85
Ill. (C. F. Bender)	75	.15	4.00	.60	4.80	.75	.25	Fair	25	70
Ill. (A. L. Kildow)		.06½	3.12½			.75	.20	Slow	5	25
Ind. (T. C. Johnson)	75			.75	4.00	1.00	.20	Slow	90	100
Ind. (E. S. Miller)	35			.65	4.80	.80	.25	Fair	95	80
Ind. (Jay Smith)	50			.80	4.80	1.00	.25	Fair	75	100
Iowa. (E. G. Brown)	75	.06		.65	3.75	.75	.20	Fair	5	100
Iowa. (F. Coverdale)	30			.45	3.50	.50	.18	Slow	75	100
Iowa. (W. S. Pangburn)	50			.52½	3.60	.65	.20	Slow	25	90
Kans. (J. A. Nininger)	30			.60	4.50	.85	.25	Fair	60	100
Me. (O. B. Griffin)					6.75		.35	Fair	90	100
Md. (S. G. Crocker)				1.00	5.50	1.25	.35	Fair	100	60
Mich. (I. D. Bartlett)	75	.07½		.55		.75		Fair	5	85
Mich. (Floyd Markham)	60	.08		.65		.85	.20	Fair	75	40
Mich. (E. D. Townsend)	95	.08½						Rapid	10	75
Minn. (Floyd W. Ray)	50	.07	3.25	.60	3.87½	.75	.25	Fair	90	90
Mo. (J. H. Fisbeck)	30			.85		1.00		Slow	100	80
Mo. (J. M. Romberger)		.14	4.00	.60	4.00	.75	.20	Slow	75	90
Nev. (Geo. G. Schweis)					2.87½	.65	.22	Fair	½	100
N. J. (E. G. Carr)						1.25	.35	Slow		80
N. Y. (Adams & Myers)				.70	4.50	1.00	.25	Fair	100	
N. Y. (Geo. B. Howe)			4.00	.62½	4.50	.80	.25	Slow	75	50
N. Y. (F. W. Lesser)	60	.07	4.25	.60	4.80	.75	.25	Fair	10	90
N. C. (C. S. Baumgarner)	100			1.00		1.25	.30	Fair	100	100
N. D. (Chas. Engle)	95			.50	4.00	.65	.20	Slow	10	25
Ohio. (R. D. Hiatt)	90			.75	4.75	1.00	.27	Fair	100	75
Ohio. (J. F. Moore)				.75	4.00	1.00	.25	Slow	10	80
Okla. (Jos. Heueisen)	5					1.00	.25	Slow	100	70
Okla. (C. F. Stiles)	60			.75		.95	.20	Slow	100	85
Ore. (H. A. Scullen)				.60		.75	.22	Slow	75	100
Pa. (Harry Beaver)				.60	3.80	.70	.20	Slow	10	
Pa. (D. C. Gilham)	60			1.00	6.00	1.35	.35	Fair	90	
S. C. (E. S. Prevost)				.75		1.00		Slow	100	90
S. D. (L. A. Syverud)				.50	4.50	.60	.25	Fair	80	90
Tenn. (J. M. Buchanan)	95					1.25	.30	Slow	100	75
Tenn. (W. L. Walling)				1.00		1.25		Slow	100	75
Texas. (T. A. Bowden)	95			.55		.75		Fair	100	80
Texas. (J. N. Mayes)	90	.05½	6.00	.55				Fair	40	90
Texas. (H. B. Parks)		.06		.50		.65		Fair	50	100
Utah (M. A. Gill)		.05½		.40	3.00	.50	.20	Fair	25	90
Va. (T. C. Asher)	90			.84	4.80	1.00		Fair	100	100
Wash. (W. L. Cox)		.06						Slow	100	100
Wash. (G. W. B. Saxton)				.41		.55		Fair		100
W. Va. (W. C. Griffith)				.75	5.50	1.00	.31	Slow	100	50
Wis. (N. E. France)	70					.75	.25	Fair		90
Wis. (J. S. Gwin)		.07½		.60		.75		Fair	80	80
Wyo. (Earl C. Reed)	95			.55		.70		Fair	20	75

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American Bee Journal, 1 year	$1.00
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We Offer All 3 for Only $2.25

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If you prefer, you can have "Bees and Honey" with "American Bee Journal"—both together for 1 year for $1.60. Or "Bees and Honey" with "Gleanings" for 2 years—both together for $1.80. We also offer "Bees and Honey" alone for 2 years for $1.60, or for 3 years for $2.25. (All offers are for U. S. and Canada only.)

Sample copy of "Bees and Honey" FREE on request. Address all orders ONLY TO—

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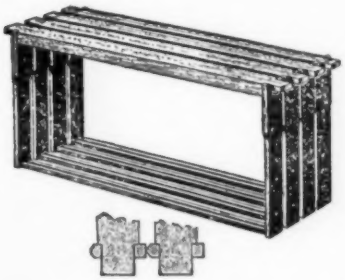

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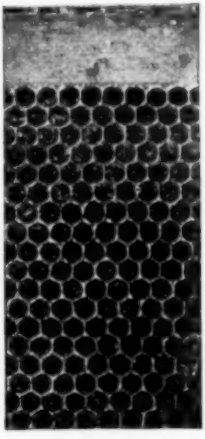
In Each Pound of Dadant's Wired Foundation Are Seven Sheets of Beeswax Supported With Nine Wires of Crimped Spring Steel

Each frame-filling sheet contains nine crimped steel wires, radiating their support to hold up the combs through heat, under weight, with handling. You feel you can depend on them. See how the wires tie themselves into the wax and how the crimps give support all through the sheet. These wires are stiff, not soft. Take one of them out and see how straight it is. Bend it until the ends touch. See how it springs back. A set of frames with Dadant's Wired Foundation, without any other wiring, were carried 1500 miles over all roads and at the end the sheets were just as at the start. In the bee hives they produced fine combs.



In the heart of the sheet are the crimped steel wires; the rest of it is beeswax. The same kind of wax your bees produce, refined into a clean sweet wax which will help you keep public confidence. All our wax is carefully tested and milled by experts into foundation that is sorted, sheeted, and reaches you in perfect condition to use.

What Do Combs Mean to Your Honey Crop?

Remember, the best queen can not get bees from a poor comb. A good comb and a good queen together make a difference when you weigh the honey at the end of the honey flow. There are more eggs laid, more bees out, more powerful colonies. And how nice these combs are in the supers, how well they uncap. When your uncapping knife is flying, they are a joy to handle.

It Works Like a Charm

Quickly and surely you can fasten Dadant's Wired Foundation into Lewis Slotted Bottom Bar Frames in jig time. Consider the hours saved when time is short, the freedom from troubles you used to have, how much better your combs are.

And Now You Can Get Dadant's Wired Foundation at Lower Prices Than Ever

We have some real money saving prices for you this year. Whether you buy Dadant's Wired Foundation, Dadant's Plain Foundation or Dadant's Surplus Foundation, you get it at a figure that will mean a saving to you.

Be sure and get our 1931 catalog.

When you plan your foundation buying, consider what this means to you.

Dadant & Sons, Hamilton, Illinois

Famous Foundations--Wired--Plain--Surplus

Gleanings in Bee Culture

January, 1931

Our Cornerstone

REMEMBER at all times that improved bee culture is our end and aim, and we trust no one will hesitate to give any facts from experience because they may tend to overthrow any particular person or "hobby." If any of our special plans don't work, or if anything we advertise has had its value overestimated, here in these pages is the place of all others to set the error right.—From A. I. Root's "Introductory" in the first issue of Gleanings in Bee Culture, Jan. 1, 1873.

More Corn Sugar Intrigue

Apparently the manufacturers of corn sugar are determined to break down the Pure Food Law regardless of what it may cost. According to reports, they are making an attack along the entire front, and if money and intrigue will make the breach in the Pure Food Law which they so desire, they evidently intend to accomplish their purpose.

Not only do they have three bills pending in the present Congress, but they are now making a renewed attack upon the Secretary of Agriculture in an attempt to induce him to nullify a vital principle of the Pure Food Law by an administrative order, thus accomplishing by executive order what Congress has so often refused. Instead of coming out in the open to ask for a special privilege for corn sugar not granted to any other food product, as they did last July at the hearing before the Secretary of Agriculture, they are now resorting to their old tactics of remaining in the background and attempting to make it appear that influential senators and representatives, the Federal Farm Board, the American Farm Bureau Federation, and others, are the ones who are asking for this special privilege for corn sugar.

According to newspaper reports, a recommendation has been made to the Federal Farm Board by the Coarse Grain Advisory Committee that the Pure Food Law be modified to permit the use of corn sugar in other food products without mention on the label. The Farm Board is expected to bring pressure upon the Secretary of Agriculture to bring this about.

An article in the United States Daily of December 20 states that on December 18, a group of senators and representatives called on the Secretary of Agriculture asking him to eliminate the department regulations regarding the labeling of corn sugar. Thus, we have the shameful spectacle of a group of law makers (who have not been able to induce the legislative department of the government to disregard the rights of the public and grant a special privilege to corn sugar) turning to the executive department of the government and asking a cabinet officer to nullify a vital principle of the Pure Food Law for the sole purpose of benefiting a group of manufacturers of corn sugar! If these law makers have respect for their oath of office, it must have been a shamefaced group that visited the Secretary of Agriculture on December 18. Views on the corn sugar question were presented to Secretary Hyde by Senators Capper of Kansas and Glenn of Illinois, and by Representatives Hull and Adkins of Illinois; Haugen, Cole and Dickensen of Iowa; Strong of Kansas; and Purnell of Indiana.

But strong pressure is being brought upon Congress, and it is difficult to tell what the corn-sugar people may accomplish there. They have three bills now pending in Congress which would give them their much desired breach in the Pure Food Law, which would ultimately result in its complete destruction. Whether this latest move on the part of the corn-sugar people means that they have given up hope of getting either of their three bills through this Congress, or whether it is intended to attract the attention of the friends of the Pure Food Law while they slip something through Congress, no one on the outside can tell. At any rate, beekeepers should immediately write to Arthur M. Hyde, Secretary of Agriculture, again imploring him to make no changes in the regulations regarding corn sugar.

People Still Like Honey The old adage about necessity being the mother of invention is well exemplified in the present marketing difficulties. The demand for honey through regular trade channels has been so weak this year that many beekeepers have been compelled to sell direct to consumers. In many cases this has meant making new consumers. Probably never before in the history of beekeeping in this country has so much honey been sold locally.

In their distress, beekeepers have gone to their neighbors and to neighboring towns with honey in 60-pound cans, 10-pound pails and 5-pound pails, offering it at such attractive prices that large amounts are being consumed in rural communities. Thus, it is being demonstrated that honey has not lost its appeal. People like honey just as well as they did when times were flush. The trouble is that they do not think about honey until their attention is called to it. It is becoming increasingly difficult to bring honey to the attention of the masses in our great cities since this means large scale and expensive advertising, but in smaller towns and in rural communities, beekeepers by a little effort can stir up an interest in honey that brings surprising results in sales.

In producing centers, especially in the West, where honey is frequently brought to the attention of the public, the per capita consumption is many times that of an eastern city. If the per capita consumption of honey in the larger cities could be brought up to even one-half that of some small western towns, there would not be enough honey in the country to go around. Fortunately, many who can not find other employment are now selling honey on the streets of the larger cities. This should help keep alive the taste for one of the finest foods in existence.

Honey Production Being Stabilized Not many years ago if winter losses depleted the apiary, or if a severe drouth killed the honey plants, honey production in the locality had to be dropped out for at least a season. Today, all of this is changed. The advent of package bees has made it unnecessary for northern beekeepers to lose a crop of honey because of winter losses; the annual sweet clover (Hubam) has made it unnecessary to lose a crop of honey because the honey plants have been killed by a severe drouth the previous season or by winter injury.

Northern beekeepers are rapidly learning to take advantage of the package-bee method of saving their crops of honey when winter losses are severe. Not only have the larger commercial honey producers learned this, but smaller beekeepers are rapidly learning the same lesson. Even the beginner with two or three colonies, who has been so unfortunate as to lose one of them, is quick to see the advantage of stocking his empty hive with package bees, thus using his equipment to full capacity instead of having idle equipment and a smaller honey crop.

The old way was to make up winter losses at the expense of the honey crop, thus not only losing the potential crop from the colonies that were lost during the winter, but also losing a part of the potential crop from the colonies that wintered over well. Not only are the empty hives filled with package bees early in the season by the alert beekeeper, but any colonies that are too weak to build up to profitable strength without assistance are gradually brought up by adding a pound or two of package bees without a queen. The package bees are purchased in April or early May, and the honey these bees produce may be ready to turn into cash in July, thus giving quick returns.

As has been previously pointed out in these columns, it is not necessary to lose a honey crop in localities where sweet clover will thrive, even though the honey plants have been killed or greatly injured by the drouth or by being winter killed. Twenty-five or thirty acres of Hubam within range of flight of the apiary should, under favorable conditions, supply enough nectar for a good crop of honey for at least 50 or 60 colonies. If seed-in-the-hull can be obtained, it may be sown this month or next in order that the freezing and thawing of the soil shall cover the seed and that moisture shall penetrate the thick shell. If hulled and scarified seed are used, it should be sown in March or early April in most northern localities.

For winter sowing, the Ohio Experiment Station recommends using both an inoculating soil and a commercial inoculation culture to insure good inoculation. Inoculation soil can be chosen from a field that has recently produced a good crop of well-inoculated alfalfa or sweet clover, and the inoculation cultures can be obtained from seed dealers or farm bureau offices.

Government Work in Beekeeping

But few beekeepers realize the extent of the work being done in the Bee Culture Division of the Bureau of Entomology, United States Department of Agriculture. Within recent years, not only has the work in the Bee Culture Laboratory at Washington been expanded, but field stations have been established in Baton Rouge, La., Laramie, Wyo., and one is soon to be established on the Pacific Coast.

The report of the chief of the Bureau of Entomology for the fiscal year ending June 30, 1930, recently published, contains a brief report of the Bee Culture Division—just enough to make one wish for more details on the various lines of work now being carried on by Uncle Sam for the benefit of beekeepers. When the various projects now under way have been completed, and the results are tabulated and published, there will be a rich fund of information available, much of which will have a direct practical application in beekeeping.

The work on artificially inseminating queen bees is being continued on a broader scale and with improved facilities. Bees of various races are being studied as to tongue length and other characteristics. In co-operation with the Division of Forage Crops of the Bureau of Plant Industry, experiments to determine the efficiency of honeybees in the pollination of red clover are being conducted. Investigation of the physiological effects of ultra-violet rays on the brood, adult workers, and on adult queens is being continued. Studies are being made on the longevity of package bees and queens. The studies on the cost of honey production and apiary management in the West are being completed, and similar studies are being taken up in the clover belt. Studies are being made on the effect of climate and soil on the nectar-producing plants and nectar secretion.

The examination of the samples of brood submitted for diagnosis is continued, thus making it possible for beekeepers anywhere in the United States to send samples for laboratory diagnosis without charge. Investigational work in the brood diseases is being continued both at Washington and at the inter-mountain laboratory at Laramie, Wyoming. In the studies to determine the minimum number of spores in the food of bees necessary to cause American foul brood, it was found that a minimum of 50,000 spores per cubic centimeter, or 50,000,000 spores per liter of sugar syrup (about one quart) is necessary to produce American foul brood. Less than 50,000,000 spores per liter have failed to produce the disease thus far. This explains why commercial honey produced in this country is not an important means of transmitting American foul brood. Thus, if a quart of honey contains less than 50,000,000 spores of the organism causing American foul brood, such honey can be fed to healthy colonies without producing the disease, since the number of spores that each larvae gets is too small to kill it. In this connection, it is interesting to note that in experiments conducted here at Medina, commercial honey from various parts of the United States was fed almost daily to a healthy colony of bees during three summers without causing American foul brood.

A third year of studies dealing with the flight range of bees was finished in the fall of 1929, and a paper entitled "The Flight Range of the Honeybee," has been prepared giving the results of this investigation. In these experiments colonies were located in the desert at different distances from the source of nectar to determine how far the bees would forage. It was found that, when necessity demanded, bees flew at least eight and one-half miles to the source of nectar and returned. A distance of two miles from the source of nectar had but little effect on the average gain in weight made by the colony. During all three seasons, colonies located some distance from the source of nectar made greater gains than colonies located within the source of nectar. Beekeepers will look forward with great interest to the publication of the bulletin giving in detail these results.

At the Southern States Laboratory located at Baton Rouge, La., work is being carried on chiefly along three lines: The standardization of cages for shipping package bees and nuclei, the kind and quality of food, the method of crating, the amount of ventilation and other factors connected with the shipping of package bees; the study of the egg-laying capacity of queens with especial reference to the influence of environmental factors in rearing the queens, together with a study of the headway being made in the improvement of stock by southern breeders; and a study of the nectar-bearing plants of the South.

Rearing Better Queens

Jay Smith

Conditions Necessary for Lavish Feeding of Larvae in Cell-Building Colony

[This is the first of a series of articles on queen rearing by Mr. Smith which will be published in this journal during the next several months. In these articles Mr. Smith describes many new features of great value to both commercial queen breeders and honey producers who wish to rear queens for their own use. The various steps in rearing queens will be illustrated, thus making the newer methods of producing better queens easy to understand.—Editor.]

Beekeepers are finding it pays to rear their own queens as far as possible and with the low prices of honey now prevailing many are taking up this branch of beekeeping in order to cut expenses. The rearing of good queens depends more on the food the larva receives than on any other factor in queen rearing. To have an abundance of bee milk surrounding the larva at all times from the time it hatches from the egg till the cell is sealed is not only necessary for the production of good queens but to accomplish this in an economical manner is a problem that will tax the skill of the most experienced queen breeder. In queen cells built in the natural way by a colony preparing to swarm, a large amount of royal jelly or bee milk will be found after the queen has emerged. If we desire to rear the best of queens we must imitate nature as much as possible and manage our cell building colonies in such a manner that dried bee milk will be found in the cells after the queens have emerged, the same as in naturally built cells.

Importance of a Large Number of Nurse Bees

I have experimented a great deal with colonies in cell building, strong, medium and weak and find it is not the number of bees that counts but the number of nurse bees. By nurse bees I do not mean bees of any specific age for any mature bee can become a nurse when the demand arises. Old bees that have wintered over are just as good nurses as younger bees, as has been observed many times. When a bee wishes to become a nurse, she prepares for it by eating pollen and honey some hours in advance. She can then "give milk" in a manner similar to a cow. If we feed sugar syrup several days before we wish to rear cells, it causes the bees to eat pollen and also enables them to secrete wax for cell building.

It takes them several days to become nurses as the following illustration proves: If you give a frame of eggs to a colony that has been queenless and broodless for some time, the bees will remove many of the eggs and do an indifferent job of nursing the larvae that hatch from the rest. If you give such a colony a bar of grafted cells, they will accept few and finish them poorly. They seem to feel they can not nurse all of the larvae, so tear out many of the eggs to make nursing easier. But if you introduce a queen to them, they seem to know they will soon have nursing to do, so prepare for it by eating pollen and honey, so that when the eggs hatch the cells are fairly flooded with bee milk, making the comb appear as though they were trying to rear queens from all of them.

I have noticed that it takes about three days' feeding to cause the bees to give milk. It will also be noted that it takes the egg three days to hatch. I am of the opinion that as soon as the queen begins to lay, the workers begin to eat pollen so that, by the time the eggs are hatched, they are ready to supply the newly hatched larva with milk. If you now take away the queen and all the larvae and give a bar of grafted cells they will do a nice job of accepting and finishing them. These same bees, that failed before they had a laying queen, now are good nurses. The difference comes about by the bees eating pollen.

Method of Inducing Many Bees to Become Nurses

How then are we to induce the maximum number of bees in a colony to become nurses? We must bring about a condition whereby the bees are nursing a large number of larvae. The colony should have a young prolific queen in order to supply plenty of larvae. A colony of medium strength with a prolific queen having all the larvae they can nurse will be found to contain the maximum number of nurse bees. Such a colony is ideal for cell building. When a colony is very strong in bees containing many more bees than are necessary to care for the brood present, many of them are not nurse bees. They will not do so well at cell-building as a less number from a colony containing more brood. Then when a honey flow comes on

many nurses turn to fielders making cell building more difficult. I have endeavored several times to rear queens early in the spring before much pollen was present by adding bees to the cell building colony and feeding heavily, but only failure resulted.

Selection of Cell Building Colony

The beekeeper can dip his own cells by making a dipping stick slightly tapering and making the small end just the size to fit in a drone cell. The compressed wax cups are also good and may be purchased from supply dealers. The colony containing the largest amount of unsealed larvae is selected. This has been proved to be the best many times but one illustration will be given. I shook most of the bees from a colony and set it aside, and to the bees shaken I gave some prepared cells. A virgin queen out of her mating flight was called in with disastrous results to my cells. I allowed her to lay till the colony was well stocked with larvae. The colony containing the old queen now had plenty of larvae also. I shook both colonies into an empty hive giving two empty combs and 120 grafted cells. They accepted nearly all and fairly filled the cells with bee milk. A very large proportion of the bees were nurses. So we must bear in mind that it is not the number of bees but the number of nurse bees that count.

Preparing Colony for Cell Building

Having selected our cell building colony it is set just behind its original stand with the entrance pointing in the opposite direction. An empty hive is then set in its original place. Two frames of honey and pollen, but no brood, are taken from the colony and put into the empty hive. About two-thirds of the bees are then shaken into the hive on the old stand. The field bees while not nurses, will return to their old stand and bring nectar and pollen. Many of the bees shaken into the hive are nurses and will secrete milk freely. In about half an hour after the bees have recovered from the shaking, a frame of grafted cell is given. If the colony is in the best of condition, 120 cells are given. We give from that number down to 40, depending on the condition of the colony generally.

The time most favorable for cell building is when the bees are swarming as at that time there is a good supply of pollen. Unless there is considerable nectar coming in sugar syrup must be fed three days before the cells are given. It is difficult to tell just how many cells any given colony should be given. Only experience can determine the number. But it is well to err on the safe side and give a less number when in doubt for it is good queens we wish to rear.

Vincennes, Ind.

Inexpensive Labor-Saving Devices

M. G. Eldred

Ingenious Arrangement of Simple Apparatus in a Small Honey House Saves Much Labor

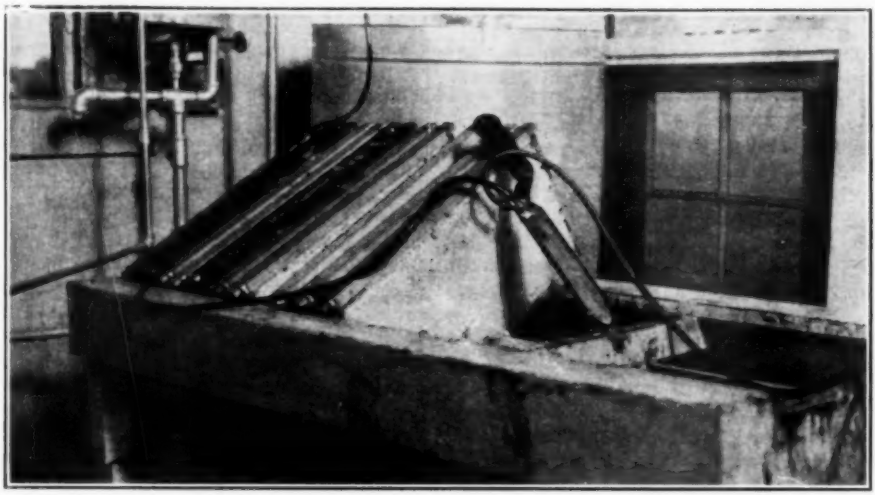
When a man is employed every day in a gainful occupation, keeping bees in his spare time necessitates reducing of man power to a minimum on account of the small amount of time at his disposal for this work. When I had twenty colonies and ran them partly for comb and partly for extracted honey, I got along nicely with a two-frame, hand-power extractor, a capping melter and a steam-heated knife, but when I increased threefold, it was a different story.

Limited Time Mother of Invention

The fall of 1928 we had a plentiful rainfall, and much snow fell during the winter and stayed on till late in the spring—ideal conditions for clover. I had increased my equipment to sixty colonies, and I realized that to move a good crop alone it would be necessary to use power to handle as much of the work as possible. There were other problems also, such as heating honey in a small way in sixty-pound cans, straining out the coarse particles of wax after the honey had left the extractor, bottling without foam, etc.

My honey house was small and was built from scrap lumber which we had on hand after remodeling the residence. We had electricity and gas on the subdivision, but no wiring or pipes for light or power in the honey house. I had to have electricity for power as I figured I could use gasoline instead of gas to fire a ½ H. P. steam boiler which was a necessity in the general scheme of things as I had worked it out as described later on.

After considerable controversy the

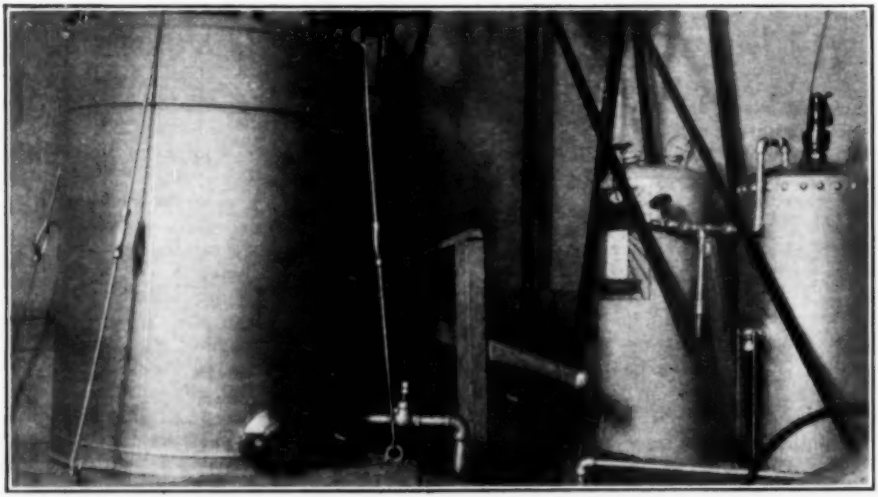


Capping melter and steam-heated knife. The exhaust steam from the knife is utilized to melt the cappings, and the water from the condensed steam is saved for scrubbing the floor.

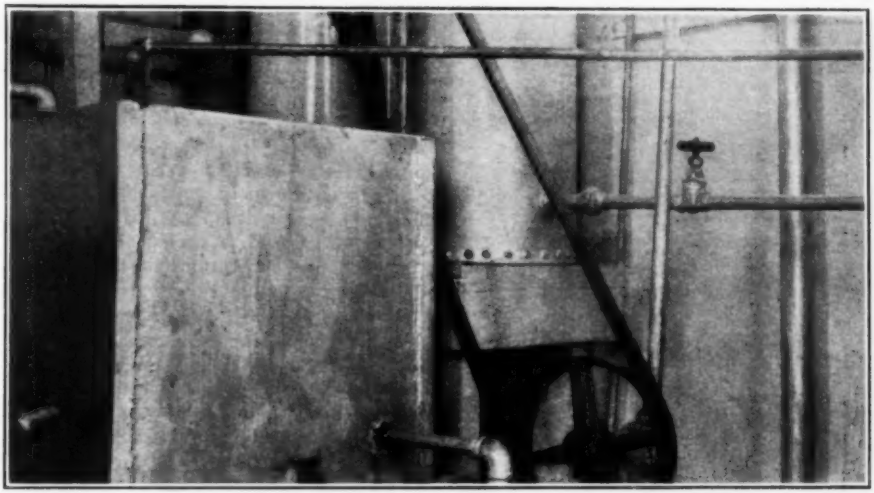
electric company ran wires to the honey house and the next thing on the program was wiring. With the help of one of the boys at the office who drew up the plans for light and power circuits, we did the wiring at cost of material. I purchased and installed a ½ H. P. motor which I bought at a greatly reduced price because it had been used for a few weeks. The next problem was the boiler. One of my customers fortunately had just such a boiler, ½ H. P., which his business had outgrown. It had been used to heat steam pressing irons. He very generously donated it to the cause on account of having purchased honey from me on several occasions.

A Strainer Within the Extractor

The next problem was straining the cold honey as it came from the combs.



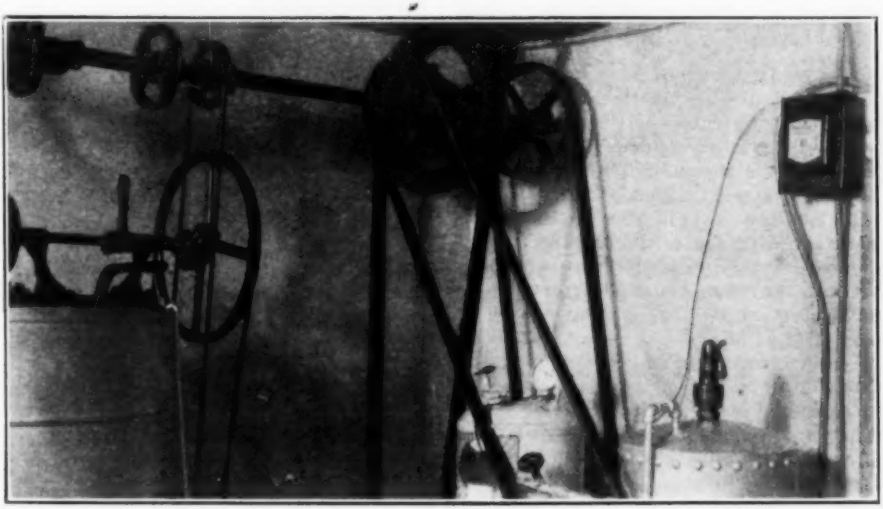
The outlet from the extractor delivers honey to the heating unit, the top of which is shown. The lever in the middle operates the friction clutch for starting and stopping the extractor reel. The gasoline tank at the left and water tank at the right are connected with an air pump at the back operated from the shaft above. These tanks carry 40 pounds of air pressure above the gasoline in one and the water in the other. This unit feeds gasoline to the burner and water to the boiler.



Water jacketed heating unit. The inlet from the extractor is shown at the left just above the top of the tank. After being heated to 130° F., the honey pump at the outlet forces the honey through the overhead pipe into the storage tank.

This had been a tremendous task before, but with power at hand, it was accomplished automatically by simply making a basket out of copper screen fitted outside of the extracting reel. With this improvement, all the coarse particles of wax were screened out before the honey reached the sides of the extractor by centrifugal force.

The next step was providing a water jacketed unit for heating the honey to about 130° F. This was accomplished by making a tank of No. 16 galvanized sheet iron lined with tinned copper allowing one inch space for water around the sides, the bottom being raised in the back about four inches with baffles across at intervals of three inches so that the honey passing over this heated surface is evenly heated. As it collects at the bottom, it is pumped out by a gear pump through a pipe extending upward, then



Overhead shafting showing the hook-up to the extractor, the belt to the honey pump, and the belt to the ½-horse power electric motor.

Old storage tank built for, but not used as a gasoline tank. The honey gate was soldered in place and the hole at the top was enlarged to 12 inches in diameter. The funnel was made from a discarded milk strainer, with screen cut out and a coarse muslin and a fine cheese cloth strainer put in place. Honey is bottled direct from this tank.

across overhead, then down through the coarse and fine screens into the settling tank. The water jacketed heating unit is heated by an electric stove underneath and also by a steam line from the boiler.

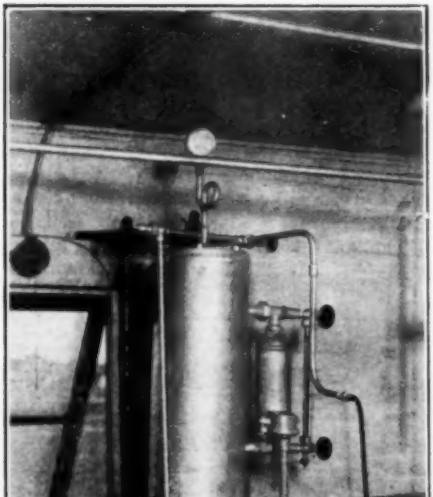
Another steam line heats the uncapping knife and the exhaust from the knife line melts the cappings in the capping melter. The condensation is lastly drawn off while hot into the scrub pail, and after making a cleaning solution of washing powder it is used to scrub up the place.

While I am uncapping the frames, the extractor extracts the honey which passes by gravity feed to the warming unit. When a sufficient quantity is warmed, it is pumped to the storage tank where, after passing through a coarse screen to take out the melted wax if any (most of this remains in the extractor screen), it then passes through a very fine cheese-cloth screen which leaves the honey clear as amber without being discolored by overheating.

Having installed the wiring and power outfit, the next problem was how to furnish fire and water for the boiler to work automatically. I drew many plans and figured out numerous schemes for handling honey by power with the result that I decided finally that a ½ H. P. electric motor and a ½ H. P. steam boiler to heat the uncapping knife and the honey after extracting, would meet my requirements.

Boiler Supplied with Water Automatically

I had a two-frame hand power extractor, and temporarily at least this must be run by power to extract the honey while I was uncapping more frames. I purchased a 10-gallon gasoline pressure tank and a 15-gallon water tank. The gasoline tank had an air pressure gauge, and a pop-off air valve set at forty pounds was installed on the water tank. A small air



One-half horse power steam boiler with automatic-float-valve water control. Steam line on right leads to the uncapping knife; steam line on left leads to water jacketed heating unit. The gasoline burner is under the boiler.

A two-frame extractor rigged to run by power. It has a friction clutch control.

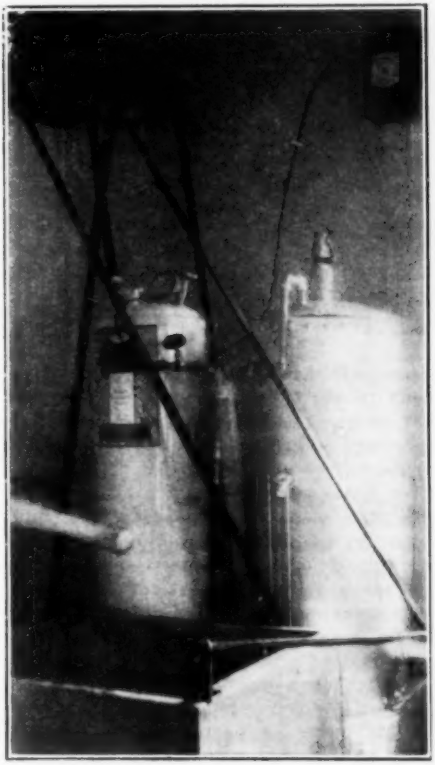
pump such as is used in garages was installed on the framework back of the tanks and attached with a T hook-up so that forty pounds of air was automatically pumped on both tanks at the same time. The water was controlled by an air float valve on the boiler and automatically took care of the boiler. I use rain water caught in barrels from the roof to prevent fouling the pipes with lime. Ten gallons will run me all day without refilling the storage tank.

Operating the Plant

The supers of honey are taken off the hives, after the bees have gone down through the screen bee escape boards, and taken to the honey house in the old flivver. Two frames are uncapped with a hot knife and placed in the extractor baskets, the extractor is started at low speed until part of the honey is thrown out, then the baskets are reversed and run until the next frame is uncapped when the baskets are again reversed and run while the second frame is being uncapped, and so on until storage tank is filled. Then after washing the bottles and pails, I sit down and bottle from the storage tank while the honey is still warm, and soon have a week's supply for our roadside stand. The pressure of several hundred pounds of warm honey in a tank forces all the air bubbles to the surface, and the honey is bottled without a sign of foam, which, to say the least, spoils the looks of a first-class grade of honey.

Utilizing Scrap and Waste Material

The object of writing all this is not to try to teach any new theory for honey production but simply to show what we did to utilize a lot of scrap and waste material that is usually consigned to the junk heap and scrap pile. We painted the pulleys and all moving parts red in order to guard against the possibility of injury. The walls and ceilings were painted light gray, because, in our opinion, while gray has the same effect as white, it does not show soil as distinctly. We use painters' washing powder in a strong solution mixed with boiling water which makes the best cleanser for the floors of anything that we have discovered. Beeswax can



The gasoline tank at the left has a pressure gauge which registers the air pressure for both tanks; the water tank at the right has a safety air valve to prevent too high air pressure. One tank feeds gasoline to the burner and the other feeds water to the boiler.

not be dissolved except with turpentine, and when particles of wax fall on the floor, it has to be scraped off. The tanks and extractor were painted with an aluminum paint as it is easier to clean and does not show the spots as quickly as other painted surface.

With this equipment, I can now produce more than twice the honey I did before with less effort and with only half the time, and with a very small expense for gasoline and electricity. I have simply tied up the loose ends.

Ontarioville, Ill.

New Interest in Pollination

E. R. Root

Recent Awakening of Apple Growers Will Increase the Demand for Package Bees

I asked Dr. Phillips last summer: "What started this sudden furore for bees in apple orchards?" He wrote back: "I don't know," and asked if I had a theory to offer. I did not. I have asked scores of others this same question. While it was acknowledged that a new and increasing interest for bees in orchards had developed, no one knew what started it.

Six months have now rolled by, and with them new light. I have come to the conclusion that the reason bees were not given credit earlier for making a definite increase in the fruit crop has been due to a misunderstanding of the conditions necessary for them to do their work. It is only within the last three or four years that these conditions have become known, and until then some of the work of the bees has been negative. Knowing what we now know, it is not at all surprising that the bees under some conditions were unable to make a showing in orchards.

Not Enough Bees

It remained for Dr. Phillips and some others to show that, in order to get results in an orchard the colonies of bees must be strong; that a two-story colony overflowing with bees is relatively much better than a single-story colony; that even a single story full of bees and brood is greatly superior to the average colony just out of winter quarters and which kind are usually furnished for orchards. These colonies in the spring often contain no more than one frame of brood or its equivalent and perhaps three frames of bees. Such a colony is so weak that nearly all the flying bees have to stay at home to hover and care for the brood, which, unprotected, would chill to death. With but few available flying bees, such colonies are practically worthless for pollination. Small wonder that the fruit growers in some cases refused to pay rental because they could see no apparent increase in their apple crops. They argued that bees were of little or no value in the orchard and that they were in the way when they wished to spray.

It can not be emphasized too strongly that the average colony of bees just out of winter quarters, while strong enough to build up for a honey crop in July, is much too weak at the time the trees are in bloom in April or May to do effective work in pollinating the blossoms.

Mistake of Planting Solid Blocks of One Variety

There is a second factor which has operated against the bees and which factor was unknown until recently by both orchardists and beekeepers. The colonies might be ever so strong with hundreds of them all through the orchard, yet there would be the usual failure of the crop. Hutson of New Jersey, Hootman and Kremer of Michigan, Howlet of Ohio, MacDaniels and Heinicke of New York, and some others have shown that the practice of planting solid blocks of one variety of apples is a mistake, especially if that variety is sterile to its own pollen.* In such a case, unless there is interplanting of other varieties or bouquets of such varieties that are interfertile or friendly, there will be no fertilization of the blossoms, bees or no bees.

In most of the old orchards, there were interplantings of different varieties in the same orchard. In most cases, there was interfertility of blossoms but in a few others it happened that they were all

*Sterile to its own pollen means that the pollen on a tree can not pollinate the blossoms of its own tree, although it might do so of another tree. Intersterile means that the pollen will be ineffective on other varieties. Self-fertile, which is rare, means that the pollen will be active on its own blossoms. Interfertile means that the pollen will be effective on other varieties.

intersterile. In the latter case, no amount of bees could bring about effective fertilization.

In later years, but before the facts of intersterility and interfertility of varieties were known as now, it was becoming more and more the practice to plant solid blocks of one variety of apples, on the ground that, as all the trees would bloom at the same time, bees could get in their work; but if the variety was self-sterile, as it often was, bees could make no showing whatever. The pollinating variety must not only be interfertile, but it must bloom at the same time before bees could double or triple the crop as has been done in Michigan and elsewhere.

Sometimes bouquets of other varieties that were interfertile or friendly were scattered all through the solid block of orchard of a self-sterile variety. In others top graftings of fertile varieties were applied to every tenth tree. The results in either case have shown a marked increase in the apple crop.

Taking all these factors together, it will be seen that in orchards containing a solid block of one variety sterile to its own pollen, or in the case of weak colonies, bees would have no chance to make a showing.

It is the knowledge of these facts that is slowly filtering across to the fruit growers that is the answer to the question propounded at the outset, namely: Bees can be and are immensely important provided there has been interplanting of varieties that are friendly to each other, or, provided that there have been top graftings of friendly varieties among trees that are sterile to their own pollen. This is what has and will stir up a greater demand for bees in orchards.

Conversely it was the repeated failure to get results from bees on account of the above-named conditions that were absent that caused the fruit growers to say that bees are of but little value in the orchards.

New Conditions in the Shenandoah Valley

In the South, particularly in the Shenandoah Valley, wild bees in the great orchard districts, were abundant enough to pollinate the trees, up till the last few years, but the great increase in acreage and planting in solid blocks changed the situation so that the crops of apples per acre began to show a noticeable falling off. Here again has developed a demand for more bees. Where could the bees be obtained?

Package Bees for Orchards

The discovery of conditions under which bees could and could not effectively pollinate orchards and the general increase in acreage of orchards has begun to create a demand for bees in orchard work such as was not known a few years ago. Here is the answer to the question propounded at the start.

If all fruit growers knew the facts set forth in this short article and the knowledge of such facts were accepted and put into practice, the demand for bees by orchardists would greatly exceed the demand on the part of beekeepers for honey production only. Unfortunately, only a few of the leaders and the experiment stations know these facts.

I talked with one of the largest apple growers in the United States. He asked me why, with plenty of bees in a solid block of delicious apple trees, he could get no apples. When I explained that he would have to distribute bouquets of friendly varieties, or top graft all through the orchard he was surprised. The rank and file of apple growers, I find, do not know these fundamental facts. You can't tell them their mistakes, because they have been growing apples all their lives, and they feel that they ought to know more than a beekeeper who wants to rent or sell bees to them.

I mention this because it will take time to educate these men to the fundamental facts of their business. The farm bureaus, county farm agents, and the extension men are getting in their work. Even with all of these, it may take ten or even twenty years to get the new gospel of apple growing across, and when that time comes the demand for package bees will be so enormous that it will greatly exceed the present demand from honey producers.

The duty of the beekeeper, especially those who furnish package bees, is to help educate the apple growers. How this may be done I shall try to explain in the February issue. By helping ourselves we shall help the apple growers. When the orchardists begin to see the light, they will help us to get more effective control of American foul brood by uniting with us to obtain better legislation not only in respect to foul brood but in the matter of spraying and dusting. Those who have been educated to the new gospel are doing it now most effectively.

Overrated Honey Plants

John H. Lovell

Sour Gum, Honey Locust and Other Plants That Are Given More Credit Than They Deserve

Fifty years ago it was generally believed by beekeepers that most plants yielded, at least, "a little honey." Sooner or later very common plants were reported in certain localities as sources of surplus honey. The older lists of honey plants are largely uncritical and include wind-pollinated flowers, pollen flowers, and flowers with the nectar so deeply concealed that it is far beyond the reach of honeybees. A Yankee beekeeper whose attention was called to this fact after long hesitation finally declared that it seemed as though Providence was kind but careless. It never occurred to him that nectar secretion has been developed for the purpose of alluring insects to flowers, and not as a benefit to beemen.

Oak Trees Do Not Yield Nectar

Some twelve years ago when I was just beginning the preparation of the "Honey Plants of North America," I received a visit from Mr. William Selser of Philadelphia, who for many years was a buyer of honey for The A. I. Root Company. In the course of a conversation, during which he gave me much valuable information in regard to the qualities of the different honeys, he remarked half humorously that if anyone were to go into a meeting of southern beekeepers and tell them that the bloom of the oaks was nectarless he would be mobbed. At one time it was widely believed throughout the South that the oaks were good honey plants; and, in a bulletin on the honey plants of one of the southern states before me, two species of oak are listed as sources of honey.

This mistake undoubtedly had its origin in the presence of great quantities of honeydew on the foliage of this genus of trees. The oaks are, of course, wind-pollinated, and the most cursory examination of the staminate catkins is quite sufficient to show that both nectaries and nectar are absent. The solitary pistillate flowers are usually completely overlooked, but they are equally nectarless.

The common sweet-scented white water lily, *Castalia odorata*, is another example of a plant which by mistake has been placed among the honey plants. Many beekeepers believe that it yields nectar, and, where abundant, may produce a surplus. Its pollination offers one curious and anomalous feature which deserves mention. The past summer I examined a great many buds before they had opened, and in every case I found the stigmas of the bottom of the flower covered with water. This has been observed by others both in America and Europe; and in both regions small insects are occasionally found drowned in this miniature pond. It is water not nectar, as it is not sweet, and seems to have been exuded in the bud, where it could not escape; but after the flowers have opened it evaporates in a day or two. As the stigmas mature before the anthers it may possibly aid in holding the pollen; but this seems doubtful. The anthers, which are numerous, open later and are visited then by honeybees for pollen, but they do not find any nectar. The water lily is a pollen flower, as is stated by Knuth in his *Blutenbiologie*.

Sour Gum Often Confused with Black Tupelo

The sour gum, *Nyssa sylvatica*, and the honey locust, *Gleditschia triacanthos*, are two well-known trees, which have been much overrated as honey plants. As a matter of fact the more the ecology of flowers is investigated, the smaller becomes the number which are of first importance to the beekeeper. The sour gum, or pepperidge, is a large tree, 100 or more feet tall, extending from the Kennebec River, Maine, to the Kissimmee River, Florida, and the Brazos River, Texas. Its glossy leaves become a glorious crimson in autumn and its abundant blue fruit render it a desirable ornamental tree for lawns and gardens. It is the only species of Nyssa offered for sale by American nurserymen.

As thousands of pounds of honey are otained from the water or white tupelo *(N. aquatica)* and the black tupelo *(N. biflora)*, it has been very naturally assumed that the sour gum must also be valuable to bee culture; but I have been unable to find a single well-authenticated report of its bloom ever yielding a surplus. At the Arnold Arboretum in Boston, where there are several large trees, I did not observe any insects visiting the flowers. According to Gray's Manual and Sargent's Sylva the black tupelo is a variety of the sour

gum, though later botanists regard them as distinct species.

In North Carolina the black tupelo *(N. biflora)* is common in the southeastern swamps, while the sour gum extends westward to the center of the state. Both species are called black gum in this state,

Leaves and blossoms of sour gum (Nyssa sylvatica).

and the beekeepers do not distinguish between them. Unless the beekeeper is a botanist, he will probably fail to separate them. The ecological difference seems to me greater than the morphological. The black gum or tupelo extends from Virginia to Florida and Alabama, is seldom over 40 feet tall, and is restricted largely to swampy land where it yields nectar freely and is attractive to insects. Sour gum is much larger, has a much wider distribution, and while it grows in swamps it thrives on dry upland soil and yields much less nectar. As the sour gum extends to Texas and the black gum does not we should be glad to hear from Texas beekeepers as to the value of the former as a honey plant.

By referring to the figure it will be seen that a part of the trees bear flowers which contain only stamens and a part flowers with only pistils, so that in the absence of cross-pollination by insects no fruit can be produced. The staminate flowers are many in a head, the pistillate usually two or three together. As self-pollination does not occur, sufficient nectar must be secreted to ensure the visits of a certain number of insects, but apparently it is not sufficient to justify classifying the sour gum with the honey plants.

Honey Locust Not Important Honey Plant

The honey locust, *Gleditschia triacanthos*, occupies a somewhat ambiguous position in the list of honey plants, since it has the reputation of secreting honey freely, yet no one has ever obtained a surplus of honey-locust honey. This attractive tree, also called honey shucks, gets its vernacular names, not because of its value for honey, but from the reddish brown pods, which have a sweet pulp between

Blossoms of honey locust (Gleditschia triacanthos).

the seeds, of which children are very fond. The sepals of the small flowers are united below into a cup, on the inner surface of which nectar is richly secreted. The flowers have a strong wine-like fragrance and are visited by numerous insects, especially bees. Why then is not more honey secured from bloom?

Careful examination in Harshberger's Phytogeographic Survey of North America of the distribution of *Gleditschia* shows that it grows chiefly in river bottoms, along river banks, seldom occurring on dry hills. It never forms pure forests, but is always mixed with many other trees, as oaks, elms, poplars, hickory,

and red maple, as well as many other species. In the Missouri River Valley, the honey locust, the red cedar, and the plane tree are scattered here and there. In the lower Wabash valley of Illinois the forests are of mixed type and it is rare to find a single species predominating. Usually the 107 species of trees (of which *Gleditschia* is one) are mixed together indiscriminately. In Ohio it occurs locally throughout the state. In New York and Pennsylvania it is so rare as to have no value as a timber tree. Evidently its scattered distribution explains the absence of a surplus of honey from this source. There is also evidence that nectar secretion may vary in different localities.

The honey locust offers several peculiarities which are noteworthy. Its trunk is thickly beset with numerous triple (whence it is called *triacanthos*, or three-pronged) or compound spines, three inches or more in length—a characteristic by which it can be easily determined. These branched spines are transformed small twigs. While very abundant on some trees, they may be wanting on others. Thorns also occur on the branches above the axils of the leaves, which gives the *Gleditschia* an advantage over other trees which are unarmed. For example, the top of a maple is either wholly destroyed, or else becomes lopsided owing to the destruction of its branches on the side facing the *Gleditschia*.

The small greenish-yellow flowers are in drooping racemes in the axils of the leaves. Occasionally, however, a flower-cluster, isolated and alone, puts forth near the base of one of the large branches where it appears entirely out of place, and it is difficult not to believe that it has been artificially stuck into the bark. A part of the clusters (racemes) consists of flowers with projecting stamens but without a trace of a pistil; while others have flowers with a pistil but only vestiges of stamens. But perfect flowers are said to occur. Self-pollination is further prevented by the large terminal, nearly sessile stigma, at the end of the young pod, projecting from the flower while the anthers are still enclosed in the petals.

The honey locust produces its seeds in pods and belongs to the legume group, but it is placed in the senna family as its petals are regular or nearly so. Several other species from China and Japan may be found in the Arnold Arboretum, Boston. Their graceful foliage and freedom from insect pests, make them all desirable ornamental trees, but they are late in leaving out.

Waldoboro, Maine.

Another Langstroth Memento

Dr. E. F. Phillips

Discovery of Important Records Which Reveal Steps in Early Developments in Beekeeping

Anything which once belonged to Father Langstroth or with which he had personal association takes on a semblance of sacredness to the genuine beekeeper. The discovery in 1926 of the journal which he kept for so many years was hailed as a great find, and beekeepers everywhere rejoiced that this personal record of his life and work had come to light. Another discovery has just been made which in some regards equals in importance that of his journal, and it is the purpose of this article to place the finding of this additional book before those beekeepers who take an interest in matters pertaining to the development of beekeeping and who revere the memory of Langstroth.

The present book consists of material almost exclusively in the handwriting of Father Langstroth and contains copies which he made of important letters written during the period of his leadership in beekeeping. The book also contains notes that he made in anticipation of the writing of certain of his articles and in a number of instances contains copies of the articles apparently as they went to the printer.

In the days when this book was written, typewriters and carbon copies were not in common use. This usually made it necessary, if one wished to retain a copy of a letter or article, to write it twice in longhand, once for sending and once for personal record. While, of course, carbon copies of Langstroth's letters would be of vast interest were they available, still the fact that these copies are in his own handwriting, gives them a value which could pertain to no mechanical copy of his work. His letters have a personal touch

which even his published book can not have. The days when a man's letters were of value have largely passed, for in these days of stenographers, dictaphones and mechanical writing and copying of communications, the personal touch of letter writing has largely passed out of the picture. It is then a real joy to admirers of Father Langstroth that this personally made record is found.

The book is bound in cloth and half leather, 9 x 12 inches. It originally consisted of an index and perhaps 350 pages, but the first 116 pages have been cut out, as have all pages after 322. The index refers only to pages prior to 116 and was later used for copying articles, indicating an interval between its first use and its later use. There are some blank pages throughout the book, but at least three-quarters of it is filled with Langstroth's handwriting. The paper is thin and was evidently made for an old fashioned letter press record, but fortunately the paper is of good quality and well preserved. The letters are largely copied in pencil.

Father Langstroth's penmanship changed considerably as he became older, due perhaps to age and perhaps in part to ill health. Some of the letters are written quite clearly and can be read with comparative ease, while others are so illegibly written that it is questionable whether they can be fully and accurately deciphered. Certainly one not familiar with the history of the Langstroth hive and of the introduction of Italian queens into this country would have a hard struggle to read some of the letters, but a familiarity with these events that were so vital to the development of beekeeping make the task an easier one.

Begins Correspondence with Dzierzon

Early in the book is found a most interesting letter. It is addressed "To the Pastor Dzierzon," but carries no date. It begins:

> I have for many years been desirous of communicating with you by letter but have been in part deterred from the fear that your correspondence might be so extensive as to render it ——— to you to enlarge it. Having, however, been quite largely engaged in rearing Italian bees for sale and hearing that you have been very successful in ——— them here, I sent you an order for two queens through my brother, Mr. J. N. Langstroth, now residing with his family in Hamburg, and have concluded to ask you some questions regarding these bees.

Blanks indicate places where the manuscript is not clear enough for one to be sure of the omitted words. It is evident from this much of the text that this is a copy of the first letter written by the great American leader to his great German contemporary.

Refers to Personal Beekeeping Library

Naturally records of Langstroth's letters during his active period contain a number of letters to his friend, Samuel Wagner, founder and first editor of the American Bee Journal. One dated April 1, 1878, begins as follows:

> My dear Friend—You will remember that I left some of my bee books, papers, etc., with you when I expected to return to Washington. You will confer a favor upon me by sending them here by express, taking a receipt for them from the Co. Mr. Smith has one of the old works which I wish to have sent with them. The copies of my work (a dozen I think) please accept from me to be used as you wish.

In the Langstroth journal there appears a list of his beekeeping library, now lost with the exception of a single volume, so that this reference to his books is doubly interesting. From time to time statements have appeared of the existence of books once owned by Father Langstroth, but apparently in all cases those who have found such books have been mistaken in identifying them. Careful search has been made for these books and their sale has been traced, but their fate is still unknown, with the exception of the one mentioned above.

The book contains copies of a number of letters to R. C. Otis, with whom Langstroth had business relationships regarding his hive, to Alfred Neighbor, the well known British beekeeper, to H. A. King, to Woodbury and to many others whose names are familiar to those who have followed the progress of beekeeping in this and other lands.

Smooths Out Strained Relations

It will be recalled that for a time the relationships between Father Langstroth and Moses Quinby were somewhat strained. The following copy of a letter to Father Quinby dated March 20, 1868, is therefore especially interesting:

> I regret to hear of your illness. Having just recovered from an attack of my old complaint lasting more than a year, I know how to sympathize with you. If you order any trade marks we shall be pleased to furnish them to you at 25 cts. a piece. I have made some important improvements upon my hive which will be communicated to the public in due time, and I am satisfied that I can very easily and cheaply winter bees in any of my moveable comb hives on their summer stands as well if not better than it can be done (all things taken into account) in any special winter depository. Some three years ago I sent out a few queens by mail, one to Mr. Robinson, which reached him safely.

Hoping to hear soon of your complete restoration to health, I remain, Yours very truly,
L. L. Langstroth.

In connection with this letter, it will be recalled that Robinson claimed to have made the first importation of Italian queens into the United States.

In Business Matters

Langstroth's attorney in the patenting of his hive was Mr. Wm. C. Dodge, of Washington, founder of the still existing firm of patent attorneys of that place. A letter to Mr. Dodge which carries no date line reads as follows:

If Mr. Otis has settled with you either by money or territory I shall feel greatly surprised. I presume he has as usual paid no attention to your letters. Will you please let me know how my account stands with you. If you will take pay in territory I will be glad to deed you any territory you may think an equivalent for what I agreed to do in case Otis did not do it, giving up all hope of ever getting a cent from him. I have made valuable improvements which I shall soon patent and the right to use them will be free while the extension lasts to those owning territory or legally using my hives. With kind regards to Mrs. Dodge and family, Yours very truly, L. L. Langstroth.

Apparently Father Langstroth kept after Otis, for under date of December 29, 1865, he wrote asking why his last letter had not been answered. Following this is an undated letter to Otis, as follows:

I shall apply for an extension of my patent six months before the date of its expiration, as soon as the law allows. Until the extension is granted and the validity of the patent sustained by the courts I do not wish to sell any more territory. I have no doubt that my patent will be extended and sustained, ——— ——— much larger prices can be demanded for territory. * * * Yours very truly, L. L. Langstroth.

Discusses Non-Sagging Foundation

Toward the close of the book there appears a copy of a letter addressed to A. I. Root ("Novice") dated February 13, 1871, (two years before Gleanings was first published), and the subject of this letter has a ring like the present day, since it deals with support for combs to prevent sagging. At that time apparently Mr. Root was interested in a metalic support in the midrib. Part of the letter follows:

I have thought much on the subject of metalic honey-combs since the few words I exchanged with you at the convention. I send you a letter addressed to Mr. Wagner mainly on this subject which you will please mail to him after reading it. I do this to save the time that would be needed to go over the ground again. If the sheets of comb can be pressed into proper shape, the thinner the tin, the better, provided it is just thick enough to have sufficient strength. The less conducting power, the better, not only for combs intended as brood receptacles and winter abodes but as storage combs, especially in regions where the nights are cool.

Here Langstroth forecasts the results with aluminum combs, which failed primarily because of their high heat conductivity. The letter then goes into a lengthy discussion of the use of materials other than wax for rearing brood, back to the days of Huber when he used glass cells.

Artificial Insemination of Queen Bees

Another letter with a distinctly modern sound appears as one written Dr. E. Parmly under date of May 31, 1869. The copy is the only one not in Langstroth's familiar but difficult hand writing but is copied in a neat feminine hand. He wrote:

I think the last letter I was able to write to you was about my plan for securing artificially the impregnation of the queen bee. Soon after that, I had a severe relapse, and until within a few weeks, I paid no further attention to the matter. I think the injection plan might, in very skillful hands, be made occasionally to succeed, but even if possible, it could hardly be made practical. I am now preparing to try another plan and hope that you and Mr. Cary may be able to try it also. I will give you a rough outline of it and you may send this to Mr. Cary.

The proposed plan was for mating in a small room, a plan which did not later meet with much success in spite of numerous trials, and the plan was certainly no nearer "practical" success than instrumental insemination has become.

We have here at Cornell copies of every article that Father Langstroth wrote, so far as they can be discovered. The copies of the articles which appear in this copy book are in some cases marked with the name of the journal in which they were to appear, but in most cases dates are lacking and in no case is the paging of the printed article given. By comparing the copies with the copies of the printed articles, it should in almost all cases be possible to connect the two and to get dates for the writing of the articles contained in this book. Some of the articles written by him years ago might with profit reappear today, for they are still practical and good.

With such a treasure before one, extracts of great interest might be made to almost any length. The important thing at present is to make beekeepers aware of this great find, so that all future students of the life and work of Langstroth may be able to consult it. It will prove of great value in the completion of the biography of Langstroth on which Miss Florence Naile is working.

The book was found through the efforts of Father Langstroth's grandson, Mr. W. L. Cowan, and was presented by Mr. Cowan to Cornell University, as a companion volume to the journal which is also held by the University. These two

great human records of the activity of our great leader are therefore saved for future generations of beekeepers, and will not, like his personal library of beekeeping, be lost to sight. In places the handwriting is most difficult and some of it may be impossible to read, but it is hoped that as much as possible of the entire book may be "translated" into typewritten material and thus made more readily accessible.

Ithaca, N. Y.

The Bees of Rapid Valley

J. Franz Norgren

A Remarkable Woman Beekeeper in a Most Picturesque Setting

There's a part of South Dakota that people say is distinguished for its general appeal. It might be called a country of moods. Within the space of a few minutes' drive, one can leave the broad prairie land east of the city where spring-fed streams are a-sparkle with sunshine reflected from the varied colored stones that line the creek beds, where clovers and alfalfa bloom in profusion during their season and herds of livestock substantiate the region's agricultural status; one can leave this and be up among the Hills where the everlasting green of pines is interspersed with groves of birch and quaking aspen and the cliffs and barren spires break nonchalantly into the skyline, where vagrant winds and mountain streams sing notes of wonderland.

From up among these mountains—the Black Hills of South Dakota—comes rampant Rapid River coursing in laughing abandon through Rapid City, the portal of the hills. Then to the eastward, the river makes its way more sublimely down the fertile Rapid Valley. Here in the foothills Nature speaks in varied and generous terms, and men, admiring, linger to find contentment. The valley, an agricultural district of note, would be incomplete without its bees, for Nature in her lavishments provided not the least for these conscientious workers.

Managing 250 Colonies for Profit

To mention bees and honey about Rapid City implies one thought—the Blackwell Honey Company—and that institution signifies an outstanding beekeeper, Mrs. C. H. Blackwell, owner, manager and operator of four apiaries down Rapid Valley.

It may be considered unbelievable what one woman can do, but Mrs. Blackwell, although 58 years old, with only one helper during the rush season, shoulders the active problems of caring for the 250 colonies that comprise the four apiaries as well as extracting, bottling and marketing the honey. She has built an enviable business through good management and her genius in guiding the nectar bucca-

Mrs. Blackwell, manager of the Blackwell Honey Company, and her granddaughter in front of the Blackwell home.

neers. And keeping her bees for the pure joy of it she finds profit as a natural consequence, a reasonable reward for work well done.

Having always been a lover of the out-of-doors and a student of biology it became Mrs. Blackwell's desire to express that characteristic in a profitable way. Accordingly she spent $75.00, which was part of an heritage, for a few colonies of bees. Thus the initial step was made in 1914 in starting an industry which has grown to be outstanding in western South Dakota so far as beekeeping and honey production are concerned.

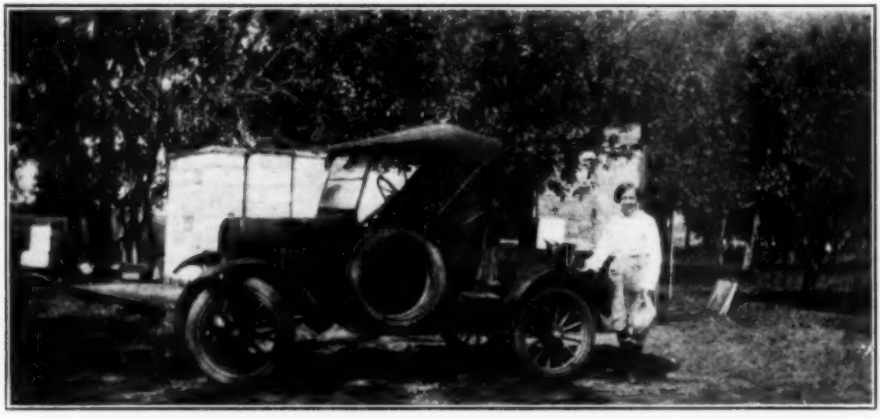
Once started in the work Mrs. Blackwell found it much to her liking in spite of the problems and unexpected difficulties that were encountered. The number of colonies were increased to 40 and then convinced that a greater number would place her business on a more practical basis she borrowed money from the local bank with which to purchase 125 additional colonies.

"Incidentally," Mrs. Blackwell explained, "those bees returned the entire investment the first season." That fact in itself speaks well for the bees and the season, but it would also seem suggestive of good beekeeping.

Once a Beekeeper, Always a Beekeeper

During that time the Blackwell family lived at Fruitdale, a little town on the northeastern edge of the Black Hills, but in 1920 conditions dictated that they move to Rapid City. The bees were sold and for a time Mrs. Blackwell tried to be content in her new home free from the thought and the sting of bees, but not for long. The opportunity to purchase 145 colonies in box hives presented itself and was accepted. The bees were allowed to remain in their crude homes the first summer. The following spring, however, Mrs. Blackwell with the help of her son accomplished the task of transferring them, as well as many of the best combs, into eight-frame standard hives.

Always a consistent and tireless worker, Mrs. Blackwell has constantly taken pains to merit the consideration of her ever increasing number of customers. She has established a reputation of producing honey of fine quality and she foregoes no effort in maintaining the standard. The best of equipment and careful and efficient handling from super to consumer are her guiding axioms.



Mrs. Blackwell, her truck and honey house, at one of her out-apiaries.

If one should be driving along the highway that winds down Rapid Valley one would more than likely meet a light truck coming along at an efficient rate of speed. As it flashes by one could distinguish the name, Blackwell Honey Co., printed on the side. It would be Mrs. Blackwell on her way to, from or between her bee yards. That little truck, which she handles with the deftness of a youth, goes a great number of miles a year and transfers thousands of pounds of honey and equipment.

The furthest apiary being about seven miles from the Blackwell home in Rapid City and the others strung along between, the nearest about a mile from town, it is

evident that the little truck fills a pronounced need in the regular visits to the yards.

The Honey House

The honey house, a neatly kept and well equipped building, is located near one of the largest yards about four miles from town. It presents a picture where it stands close beside a swiftly flowing irrigation canal and in the protection of giant cottonwoods with apple trees here and there in mingled confusion and propriety, while a short distance in the background can be seen the yard of a hundred colonies of bees, their white painted hives standing row on row in systematic order. The plant is equipped with a small gasoline engine, a four-frame extractor, honey pump and several settling tanks ranging from 40 to 70 gallons in capacity. Then there is the large uncapping table which also serves as a capping drainer and finally as capping melter. This table is made according to Mrs. Blackwell's own plan and through its use she is able to limit heat-darkened honey to a negligible quantity.

All extracting is done at the honey house where the honey is transferred in 60-pound cans to the bottling and storage room which has been fitted up in part of the basement of the Blackwell home in town. This room, by the way, saw 40,000 pounds stored there one fall, all being newly extracted honey or comb honey produced in Mrs. Blackwell's yards that summer. In this room the honey is put up in containers to suit the consumers' pleasure whether he desires an 8-ounce jar, a 60-pound can or any quantity between. No honey ever leaves this place without its attractive and descriptive label. It is Mrs. Blackwell's opinion that a good label is an inexpensive means of standardizing a quality product and retaining the good will and confidence of consumers. Blackwell honey is stocked by most of the grocers of Rapid City which may be a point in favor of neatly labeled containers.

The art of beekeeping, perhaps the most technical of all primary pursuits, requires a comprehensive knowledge in order to follow the enterprise from a queen in its larval stage to the placing of honey in the hands of the consumer. However, Mrs. Blackwell is proficient at the details that go to complete the series of events. She has had remarkable success in rearing queens for her own use. For queen rearing she chooses parent colonies with a record for productivity, gentleness and size. At no time will she tolerate a queen whose offspring are naturally disinclined toward a keeper's companionship. Mrs. Blackwell yearly makes purchases of southern queens and she speaks in high favor of them as a means of restocking and bringing new blood into the apiary.

Wintering in Two-story Hives

Her colonies are managed to prevent swarming in so far as possible. However, an occasional swarm does get away as absolute restriction is near to impossible with so many colonies. The bees are wintered in two-story hives and at present she is experimenting with three stories through the winter for some advantage for springtime division. Pads are used under the covers during winter for retaining heat and absorbing moisture and all colonies that are not well protected by trees are wrapped with tarred paper. Incidentally, Mrs. Blackwell's winter loss is usually of small percentage.

For the last eight years Mrs. Blackwell

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One of Mrs. Blackwell's out-apiaries near the Balck Hills in North Dakota.

Transferring

A number of years ago, my telephone rang and a little squeaky voice inquired, "Is this The Jay?" When informed that it was none other, he said, "Well this is J. also, so that makes two of us, don't it?" I answered that if he was as small as his voice indicated there could not be more than one and a half of us, but that I would waive that point if he would get down to business. He replied:

"Well I have business a plenty. I just bought thirteen colonies at a sale and they are not in exactly uniform hives for, to tell the truth, the hives vary in size from a cigar box up to a wagon box. Now I have heard that you like to work with bees so I take it you will be glad to come out and put them in good hives that I have all ready."

I told him I would be delighted for if there is any pleasure connected with beekeeping that arouses the poetry in one's soul it is transferring bees. When there is no nectar coming in and there are plenty of robbers, the pleasure is greatly intensified. And when the boxes are put together with spikes and screws, and when it is securely bound with band iron, as is frequently the case, it is a great sport.

He came after me in his buggy, as that was before the day of gasoline transportation. We went out to his place which was named Bunker Hill. He said that one of his ancestors fought at the battle of Bunker Hill. I asked him if that was where they got the "Bunk," but he insisted that his ancestor was the first man to use up his powder and start swatting the British with the butt of his flintlock. At any rate, as he lived on a hill with a historical name, and as he had thirteen colonies, he thought it would be real sentimental to name these colonies after the thirteen colonies of history. He gave me this information as we jogged along.

When we arrived I had to admit that his equipment was not exactly what one would call "standard." They say an Indian names the new born babe after the first object he sees after said baby arrives. I believe an Indian must have hived those bees in the first thing he saw after the swarm came out. Massachusetts was in a big goods box, and Maryland was in an inverted wheelbarrow. That colony must have been made up of regular fresh air cranks to stay in there, but stay they did, and they built comb clear to the ground. J. remarked:

"Which shall we tackle first? There is Virginia there in that vinegar barrel. All you have to do is just slip off the hoops and pull the staves apart and there you have them. It is a regular pie to do that."

He proposes a snare-drum duet for driving the bees into the box.

I remarked that it was a life-long custom with me to leave the pie till the last, and that, if he left the choice to me, we would first operate on that iron bound one, South Carolina by name.

Now it seems that J. had a very good education in bees, but it was "most book larnin" and he lacked the personal touch. However, he was soon to get that. He said, "The way to do it is to turn the box bottom up and set a hive on top and drum on the box when they will all march up just like soldiers on parade." He proceeded to cut and shape four drum sticks, giving me a pair. After giving the bees a little puff of smoke, he turned the box up and set the new hive on top. He said,

"I used to be a drummer and am wondering what tune to play." I said, as they looked like German bees, why not play "The Watch on the Rhine"? He thought they were Italians and that "The Marseillaise" would be more appropriate. But after close inspection we found they were hybrids and in reality were Yankees, so it was unanimously voted that Yankee Doodle should be rendered as a snare drum duet.

We started in but had hardly gotten to the middle of the first line when our music ceased and some more began. Never did any Yankee imbued with the spirit of '76 respond to the charge as did those bees. We were both protected (?) with veils he had especially constructed for the occasion. I asked him if he had not made a mistake and lent me his robber trap for my veil had a habit of letting everything in and nothing out. Personally I retreated in great disorder, but it did little good as I had most of the fighting bees in my veil.

When in college I was the champion in the hundred-yard dash and I was pleased to find at least that much of my college education practical. Poor J., having studied law and having been a judge, he had accumulated much fat from sitting on the bench. Therefore, he found his college training at fault for the present situation. I asked him if he was seeking a change of venue but he said any change from present conditions would be welcome. At any rate, he did his best to develop speed, and as he went through the weeds he cut a real wide swath. As he came puffing up he said, "I feel like I had been boiled in oil."

After a time we rid ourselves of the bees, readjusted our veils and went back. I emptied J.'s tobacco sack into the smoker and gave the bees a good smoking when like magic they "tamed down," as J. said. However, when we resumed our drumming they failed to crawl up as scheduled but lay in the bottom of the box too sick to fight. We turned the box over and jounced most of the bees out on the ground and set the new hive near them. Then we proceeded to cut out crooked combs and fit them into the frames.

The robbers came in hoards, and by the time we got the combs fitted into the frames, the bees were pouring in and out of the hive at a great rate. J. was sure they were gathering nectar for he had read that a new swarm always worked at a lively clip. "Just see 'em work," he exclaimed with enthusiasm, "I told you a honey flow was coming on. I was expecting swarms any time and that is why I wanted to get them into new hives." I tried to convince him that there was no nectar coming in and that it was too early for swarms, but as proof that he was right he pointed to what South Carolina was doing in her new quarters.

As it was noon J. said we would eat lunch and drink some pop he had provided. After lunch we rested our aching bones for quite a while; neither of us seemed anxious to renew the fray. At last J. jumped up with much excitement and exclaimed, "Good! just as I told you. A swarm is out." He ran after a pail of water with which to sprinkle the swarm. This took quite a little time and the swarm did not settle but slowly drifted away towards the woods. We ran after it but of no avail. They finally disappeared in the distance.

We then returned to see how our transferred bees were doing when to our surprise and consternation not a bee was in or near the hive. South Carolina had seceded from the union!

A Beekeeper Told It

Theory and Practice

A certain commercial beekeeper hired a helper inexperienced in practice but well versed in theory. No names will be mentioned, but every word of this can be vouched for as truth. Anyway, this helper had read many authorities, among them John Burrough's Essays on Birds and Bees. This, by the way, is a very interesting article which it would do no apiculturist harm to read. To quote a passage:

"* * * * We boldly and ruthlessly assault the tree. * * * Bees are to be managed with boldness and decision. Any half way measures, any timid poking about, any feeble attempts to reach their honey, are sure to be quickly resented."

Well, to make a long story short, this assistant, having read and taken this to heart, proceeded to go the whole way. He had heard of hybrids, but never experienced them, a statement which many bee-

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From the Field of Experience

GLASS OVER WINTER ENTRANCE

Bees Enjoy Sun Parlor on Bright Winter Days

Enter into his gates with Thanksgiving, and into his courts with praise.—Ps. 100.4.

I sometimes wonder if the entrance to the beehive receives as much attention as it should. Of course, the modern hive with the reversible bottom-board having a wide open space for summer, and a more contracted entrance for winter, has done away with the necessity of so much consideration being given to the entrance by amateurs.

Also the winter case with a few small holes to supply the necessary air and openings for the occasional winter flights answers practically every requirement for successful wintering; and when the winter packing is removed the normal entrance remains for summer requirements.

But there are comparatively few who use such a winter case, and sometimes the entrance is a source of no small concern. This is especially true with the long-distance beekeeper who lives several miles from his apiary and who will probably see his bees only a few times during the winter.

I have a friend who lives 160 miles from his bees and who lost so heavily one winter during a protracted sheet of ice occasioned by sleet and freezing rain that he found it very profitable to devise a kind of solarium for his entrances.

During such ice periods, it becomes even more difficult to see one's bees if they are some distance from home. Ice may form at the entrance in such quantities as to completely smother the bees from want of air. My friend made a sloping roof of glass strips not more than 2½ inches wide directly over the normal winter entrance. The water easily sheds from the entrance, the ice does not clog up the air passage, and when there is a bit of winter sunshine, the glass aids in melting away any snow or ice that may have accumulated in or near the entrance.

His experience indicated that the bees are not long disturbed in finding the entrance below the glass, and doubtless there is often a spell of warm sunshine at the mouth of the hive that gives the bees a glad promise of the spring which they could not experience without the glass. He wintered 235 colonies and experienced no loss whatever from ice-clogged entrances after adopting this method.

The ideal entrance is one small enough that mice can not enter, large enough to afford easy passage for the bees, and as dry and warm as possible, provided it is not so warm as to occasion flight on days that are too cold. The going and coming of bees through the entrance in playful mood on a bright day in winter, or the industrious hum in summer must be in keeping with the thought of the Psalmist when he said, "Enter his gates with Thanksgiving, and his courts with praise."—Rev. J. R. Stelle, Montpelier, Ind.

BEEKEEPING IN MAURITIUS

Little Island in the Indian Ocean Has Long Honey Flows

Though Mauritius is a small island, measuring 65 by 37 miles, bees do not resume work at the same time everywhere as the honey flow varies considerably in certain localities. For instance, there is a difference of three to four months between the honey flows where my apiary is situated as compared with that of another locality 10 miles away.

It is the campêche which gives the finest honey here and is the main crop for the bees in certain localities. It blooms from about the end of June until August. This tree was introduced in Mauritius a long time ago and was cultivated for extracting tincture from its bark. It grows now as a wild plant and is to be found in dry and rocky places, covering a good acreage of the island. Next comes eucalyptus and palm trees, principally the latter, which blooms during all the summer time, i. e., from October to March. We have also quite a lot of fruit trees and wild plants which give good crops of honey. So we can say that the honey flow lasts from July to the end of December in certain places, while it starts in October and lasts until the end of March in other regions, such as mine.

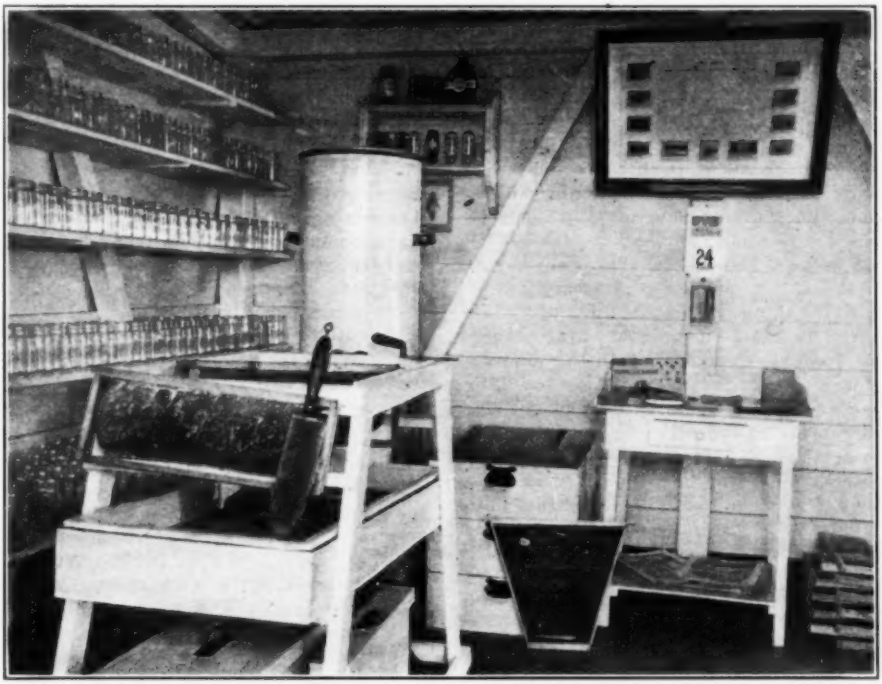
Beekeeping is not practiced on a big scale in Mauritius and modern hives are rarely seen. The natives generally have

Model apiary in Mauritius. Note the permanent character of the outfit, the peculiar shaped hives and the honey house at the far end of the shed.

their colonies in old packing cases and these are not cared for. So the honey produced is of second grade, and this chunk honey is sold to chemists at very low prices.

Colonies properly managed and requeened give good crops of honey here. This extracted honey is of very good quality and can be rapidly sold to grocers.

We have the common black bee which is a very good worker. Swarms scaling 5 to 8 pounds are easily obtained for the



Within the honey house. Note the rack for uncapping and arrangement for catching the drip from combs before being placed into the extractor; also the deep brood frame narrower at the bottom than the top.

price of about one dollar. As we have practically no winter here, colonies are seen everywhere in the wild state. It is common to see swarms clustered under palm tree branches which are more or less rainproof. Unfortunately cyclones do the greatest harm to our bees, and their work is practically stopped during the two or three weeks following these violent winds. The island is frequently visited by cyclones which cause great damage to sugar cane plantations. The main product of Mauritius is sugar. We produce from 200,000 to 250,000 tons of sugar annually, this being exported to the London market.—D. W. Wiehe, Ferret, Mapon, Mauritius.

FRANK RAUCHFUSS

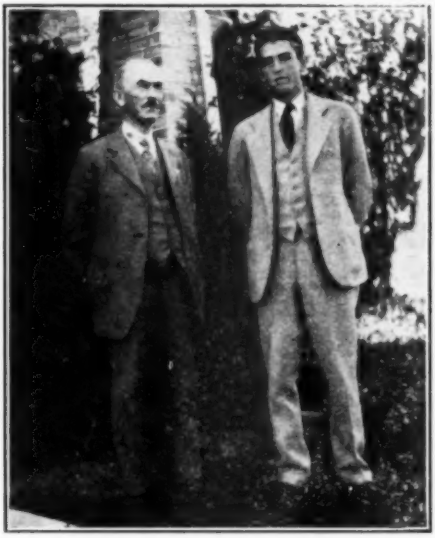
A Character Sketch of One of the Pioneers in Western Beekeeping

Sometimes I try to "kid" myself into believing that I am still young; but when a pioneer in Colorado beekeeping of about my own age passes away, I bump up against the solemn truth that I am no longer young. I refer to my old friend, Frank Rauchfuss, a brief sketch of whose life appeared on page 749 of our last issue.

Although we were separated from each other by over a thousand miles, and met only occasionally, I looked upon him as one of my warm friends. His letters were always short and directly to the point, yet through all of them there was an indescribable something that made me love him. When the news of his death came to me, I was reminded that one by one my old pals are leaving for that great beyond where I, too, may meet them again.

Three things stand out in his life work: First, he was a business man who brought his business experience into the Colorado Honey Producers' Association in 1889. Second, he was the organizer of the first successful co-operative honey producers' association in this country. I believe his associates will agree with me when I say that it was due to Frank Rauchfuss more than to any other man in it that the Colorado Honey Producers' Association has been able to serve its members so well these 40 years. Third, Mr. Rauchfuss was the first to work out a practical scheme of grading comb honey.

Once he told me that a few of his members thought he was getting too much salary. I said to him, "Frank, you know that a business corporation would pay you two or three times what you are now getting."



Recent photograph of Frank Rauchfuss as he and his son, Walter, posed before the camera.

"I know it," he said, "but big business is often selfish. I want to see the Colorado beekeepers get a fair price for their honey. If I make a living and have the respect and friendship of our members I am content."

His death means a loss not only to Colorado but to all beekeeping. This does not mean that the Colorado Honey Producers' Association will slip. He left a system of management that others can and will carry out.—E. R. Root.

SUPPORT HONEY INSTITUTE

Minnesota Beekeepers Raise Fund to Help Carry On Publicity for Honey

Recognizing the "splendid progress now obtained and the promise of still further beneficial results being accomplished for the good of beekeepers in general," Minnesota beekeepers at their recent annual meeting raised over $300 in contributions to help carry on the work of the American Honey Institute. It was recommended that individual contributions be scheduled upon the basis of $1.00 for each ton of honey produced; of $1.00 for each $2000 of gross sales of beekeeping supply manufacturers in the state; and of not less

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AMERICAN HONEY INSTITUTE

Quick Action Necessary to Continue This Great Stabilizing Influence

Listen, folks! Here is one proposition we can all agree on: Honey needs someone to blow its horn. Honey is just as sweet today as it was when the Bible was written. But today there is more of it to dispose of and there are many other sweets on the market. Big business doesn't get big over night. The nationally advertised brands have been advertised for years. The leading manufacturer of cereals is spending $3,500,000 this year on advertising because the company finds it a profitable expenditure, and the last thing it would consider would be abandoning its advertising campaign. Of course, we can not spend huge sums advertising honey, and we have one thing to be thankful for: everybody knows that honey is good. That simplifies our problem a lot. What we are up against is the job of getting folks to take what they already know is good for them.

Eating is a habit. And it is a big job to change the eating habits of the American family. But it can be done, and is being done every day. Doctors, dietitians, teachers, food pages in newspapers and radio broadcasters are doing just that. Individual beekeepers have small opportunity to make far-reaching contacts with these agencies. To favorably impress these sources of information requires prestige, recognized authority, and, most important of all, personal acquaintance and influence.

In Dr. H. E. Barnard we have just that. As president of American Honey Institute, Dr. Barnard has made more worthwhile, far-reaching, productive contacts for honey than would be possible for any other individual in the nation. Consider what it means to have honey shown in colors in a full-page advertisement in the Saturday Evening Post; to have Betty Crocker devote fifteen minutes of National Broadcasting Company's time to honey alone; to have the leading food writers discuss honey favorably in their pages and to use honey recipes in their menus; to have the many big food manufacturers sympathize with honey sufficiently to show honey in advertisements of their products. Why, if we had to pay cash for these favors at standard advertising prices the sum would run into six figures!

Such is the good work of American Honey Institute. Miss Fischer's demonstrations at national conventions of Home Economics workers, Hospital Dietitians and Restaurant owners where she brings the message of "Honey for Health" before the very people who are guiding the eating habits of the nation, is already bringing such a volume of requests for more information about honey that the Institute's offices are swamped. But if you wish to know more about this good work, read the reports in other pages of this journal.

My plea to you is to think straight. Has not the time arrived for commercial beekeepers to realize that nobody is more interested in their business than they are themselves? Surely, no beekeeper expects the honey market to improve over night. We may blame the "depression" for present conditions, but there will always be honey for sale under conditions of keenest competition with other sweets. We are only fooling ourselves to hang back in the traces waiting for some fairy godfather to untangle our problem.

American Honey Institute is the only organization we have which shows the way out of the woods. American Honey Institute has no axe to grind, represents no selfish interest, and is bigger than any individual or faction. It is the only influence, directly responsible to the beekeeping industry, which is working every day for your interests.

What is needed now is money. And, say, don't change the subject now, because I am putting this proposition up to you, Mr. Beekeeper. We are getting the services of a $25,000 a year man for a mere pittance. And for several weeks he has not been paid that pittance. We who have a warehouse full of honey we don't choose to sell at five cents, may still have the honey after we have lost the services of our "ace," if the Institute doesn't have something to use for money pretty soon. Michigan led off by subscribing $1.00 per ton, a year ago. Over $600 was raised that way, and at the winter meeting just held, it was unanimously voted to continue the same plan. Iowa, Minnesota and Wisconsin have made liberal contributions at recent meetings. Checks have commenced to come in from commercial beekeepers and associations during the past few days and we want to know that you are with us, too. Make your check payable to American Honey Institute. Do it today. Please

don't pass the buck and wait for "George to do it." Immediate action is necessary. And if you will get behind this program and stay with it, five years from now you will be proud of yourself. Are you with us?—R. H. Kelty, Treasurer, American Honey Institute, East Lansing, Mich.

SIZE OF WINTER ENTRANCES

Observations on What May Happen When Entrances Are Too Small

Considerable discussion has taken place at meetings and in the various journals regarding the size of winter entrances, some favoring a large entrance, others a small one. We have always used a small horizontal opening about ⅜" high by 1½" long, but in our endeavor to have an opening that would not be too small for ventilation or so large as to result in unnecessary loss of heat—something suitable to all weather conditions, I have been trying out the small auger holes this year on several colonies.

The apiary is located in a deep hollow among pine trees, and is protected from winds on all sides. Colonies are packed in double collapsible winter cases, there being 4" of packing underneath the hive, 8" on the sides and 12" on top. We winter in two full-depth Langstroth bodies with no upward ventilation and with tight sealed summer covers on. The tunnel is ⅜" high inside and the distance from the outside of the winter case to the inside of the hive is nearly 10 inches. All colonies are packed the last week in September, October here being usually cold.

Using a 7/16" auger, five holes were bored, about 1" from center to center opposite the tunnel opening, in one of which was inserted the peg to support the front end of the tunnel. These were left until the middle of October when we had our first cold weather with snow flurries when all holes were closed with the exception of two for the strongest colonies and one for the others.

The latter half of October was cold and all appeared to be well, but the weather was warm the first two weeks in November, some days being almost like summer—in fact, on November 15 I observed bees carrying in pollen, though I am at a loss to understand where it could have been obtained. The small entrances were then causing trouble and this was what was happening:

In each hole was a bee fanning, while around it was a constant struggle, some endeavoring to enter and being unsuccessfully crowded out by those seeking to emerge. One could almost imagine their feelings and possibly expressions of exasperation toward the being who had supplied them with such a small doorway. The oddest sight was a ring of bees around the outer edge of the hole gnawing away and trying to enlarge it. If gently moved away with the finger, they immediately returned to their task.

To afford relief, the slat covering the other holes was removed. These holes were jammed with bees that immediately surged out and there was no improvement in the situation, as the same trouble now happened at each hole that had before occurred at one or two. I then cut away the wood separating two of the holes, leaving an opening about 7/16" high and 1½ inches long. In a few moments the bees that had been with such determination trying to enlarge their entrances, ceased work and the rest of the trouble disappeared. The remaining holes were then closed, leaving an entrance the last named size.

From the above it would appear that if the temperature were continuously cold, these small holes would probably be ideal; but that during a warm spell which we frequently have in the late fall and early winter in this climate, they are too small. Possibly ideal conditions would obtain, providing one could be in the apiary to enlarge the entrances during the warm spells and contract them again on a drop in temperature, but with outyards this is, of course, impossible.—W. A. Rowland, Weston, Ontario.

MORE ENGLISH IMPRESSIONS

Further Speculation as to What Beekeeping in America is Like

My short article about my impressions of beekeeping in America, which appeared in the October number of Gleanings, has brought me such a host of letters from across the Atlantic that I have begged the editor to allow me a little space again in order to let readers know the effect of all the information which has been so kindly given me. I have certainly learned a lot, not only about beekeeping, but about the beekeepers themselves which has been most welcome news.

In the first place, what a tremendous

circulation Gleanings must have! My correspondents were not only people in Ohio but beekeepers living in Michigan, Alabama, Indiana and other states which I had never heard of and can not find on the map. I know very well such names as Alabama, for instance, because of the old song about "Mammie's Little Alabama Coon," but where on earth is the state called "Okla." or "W. Va."? I also heard from Canada.

But what one could not help noticing most of all was the friendly spirit of all the writers. I really think you people over there must be a wonderfully sociable lot. Almost all the letters begin with "My dear sir," or "My dear Mr. Allen." Possibly this may be the custom in America. In England, few of us get as much affection as that when hearing from the wife!

But in these letters there are a few things which still puzzle me. First of all, some of the addresses. One man's address is 1624 26th Ave. No. Now I take that to mean that he lives in the 1624th house on the 26th avenue of the town. But fancy a street with 1624 houses, even if his house was the last in the road. And 26 roads like that! Why, the streets must be from five to ten miles long. No wonder every American has to have a car and a telephone!

Another man tells me he has "running water" in his house, which sounds rather strange. Trout fishing indoors perhaps. And what are "gasolene lights"? One hears or reads a lot of American words and phrases in our books or on the films, and I know well that "depot" means a railway station, and "store" means a shop; but how can a village boast of an "elevator," as I hear is the case in a small village in Indiana? I thought the English for elevator was "lift." Do all the inhabitants of the village use one lift? Surely they don't all live in a single skyscraper, even though this might be more convenient than having 1624 houses in one street.

But I have shown enough of my ignorance and would like to thank all who have so kindly written to me. From what they say, much of the beekeeping is the same as over here, though I notice two matters in which we differ. In America there still remain apparently a good few who have not yet discarded the old fashioned methods and do not even use bar frame hives. Such people ("skeppists" we call them since, in place of a box, a straw skep is used in this country) have nearly died out in England. Almost all our cottage beekeepers use proper frame hives, though often in a sadly dilapidated condition. Our hives are a little smaller, the British standard frame measuring 8½ by 14 inches, though Langstroth or more often M. D. hives are used in the large apiaries which are few and far between.

The other great difference seems to be the weather. In spite of what some of my correspondents say, I feel that there really is a great difference. One man writes "it rains here in the spring and in the fall, and sometimes in the summer." Here we never know with any certainty what the next day will be like at any time of the year. That is always the greatest crux in beekeeping in this country, although we do have quite good seasons sometimes. I, myself, have taken an average of over 100 pounds per colony, spring count, but only once. I am usually satisfied with half that amount. Yet one of your people, writing from the mysterious state of W. Va., tells me that he took 1018 pounds of comb honey from six colonies and also increased them to ten the same season. This means nearly 170 pounds per colony and an increase of about 66 per cent in one year. I doubt whether that could be done in England in our best of seasons.

This man says he possesses what he terms a "truck garden." That is another term which is Greek to me. What are the trucks for and why have a special garden for their accommodation? Surely they might be kept in outbuildings or a back yard. Trucks can not require especially fertile soil; and think of the trouble of weeding the trucks. But many of your expressions are puzzling to a "guy" who has always lived in England.

As I said above, I have been immensely pleased with the tone and friendliness of all the letters, and felt very ashamed when one man wrote saying he had read a few of our bee papers, but found them to contain little else but disputes and quarrels over trivial matters. This is only too true. When forty million people are all crowded together on our small island, perhaps it is only natural that they can not all agree; but it makes one envy the apparent friendliness and sociability of beekeepers in America.—M. Yate Allen, Doncaster, England.

From North, East, West and South

Southern California

It is getting along toward that time of the year when we expect considerable rain if we are to have a prosperous season next year. To be sure we have had a little rain, but a good soaking before the holidays always helps greatly toward assuring us a honey crop the following season.

Honey and market conditions remain about the same as at the time of my last letter. Some honey is moving from the producer to the buyer but considerable is still in the hands of the beekeeper. The first installment of taxes was due December 5, and some beekeepers have sold to get money to pay them.

Beeswax is low in price and slow sale with little or no demand. Many reasons are offered for the low price and slow sale of wax; but after all it is only in line with many other products. Farmers with beans, green peas, tomatoes and many other crops are all complaining of low prices or no markets. One thing is certain: most foodstuff is much lower than formerly, and living is much cheaper, if that is any consolation.

Most Beekeepers Will Continue Keeping Bees Regardless of Lower Prices and Slow Sales of Honey.

We do not look for any material change in the general personnel of the beekeeping industry in our part of the country on account of the general depressed condition of the bee business. The large operator who operates from 200 to 1500 colonies, feels that things will again roll around to a more satisfactory condition, and that there is no use to go out of the bee business only to go into something else that may not prove any better if as good. Then there is the fellow with a few colonies, the fellow with from a dozen or so up to 100 to 200 colonies, and the fellow who never takes the business very seriously except when he has produced a few tons of honey in a month or two and is anxiously looking for a buyer to come along so he can sell and get some cash because he has seen a late model automobile or radio.

He will stay in the business after a fashion much as many have done for years past. He will work at something else until the bees begin to swarm in the spring, then he will hive the swarms and put supers on those that have wintered through and are strong enough. But he usually complains that "the moths have killed out a lot of my bees." Many that have pulled through are too weak to take advantage of the early honey flow and have to build up before they are strong enough to store surplus honey.

But all in all, it is not a bad business to stick to. Low prices are here today and gone tomorrow but the bees will keep on making honey just the same.—L. L. Andrews, Corona, Calif.

Texas

The month of November was very kind to the bees. Small honey flows of short duration from composites occurred together with sunny days. Unless very severe winter weather occurs within the next forty-five days, the bees will be in good shape to start on the spring honey flow. Quite a number have purchased apiaries at distressing prices, expecting to move these to fall pastures, but did not have to do so. Now they are in good shape for a spring honey flow.

Of the many commercial beekeepers who have reported on the conditions, only a few are pessimistic. The majority believe that the spring crop of honey will be large. The honey plants are in excellent condition. Horsemint is plentiful, the mesquite trees have set a large number of flowers buds, huajilla and catsclaw are in fine shape. Nothing can be said of the cotton country, as cotton is not seeded until the middle of March.

Commercial Beekeeping Drifts from Place to Place Causing Centers of Honey Production to Move About.

The drift of the beekeeping of central Texas is remarkable. For many years it was Uvalde County, then it shifted southward to Frio County, thence eastward to Live Oak, and now it seems to be in Williamson County, where many of the large beekeepers have concentrated their forces along the small rivers which cut this most famous cotton district of Texas into small territories.

The Lone Star Honey Producers' Association has made formal application for a loan from the Federal Farm Board, and expects to be in the field soliciting membership by December 1. Beekeepers who have not already an established trade will find this organization a wonderful help. The beekeepers with an established trade will profit by the new association, as it will tend to stabilize the market and to regulate the manner of selling. The fee for membership asked is very little. It will pay those who do not expect to become members of the Association to donate the membership fee, because of the benefit which will be received.—H. B. Parks, San Antonio, Texas.

Kansas A meeting of beekeepers and a meeting of the Kansas Federation of Beekeepers' Associations will be held on February 4 and 5, 1931, during Farm and Home Week at the Kansas State Agricultural College. A fine program has been worked up which will be of interest to the beekeepers of Kansas.

The summary of the past year is one unique in nature. The year 1930 began with an extremely severe month of cold weather. This cold weather relented at a very opportune time, allowing the bees to fly the first week in February. If the weather had continued another week, there would have been another heavy winter loss in Kansas, as was experienced in 1929. Bees were at the limit of their upward movement in contact with honey.

The warm weather the first week in February allowed the bees to break cluster and re-form on honey. February was an extremely warm month, the bees flying two or three times nearly every week. March started in with a very cold beginning and only moderated slightly during the whole month. March and April were extremely dry. This was to such an extent that it killed the white clover in the eastern Kansas valley, and south of it for some distance.

During the latter part of May plants advanced in condition to such an extent that they were two weeks ahead of normal and were in excellent shape. The latter part of May and the first two weeks of June were cool and rainy, keeping the bees within the hives. During this period many colonies starved to death because they could not fly to the field to gather food and because the beekeeper did not supply them with the necessary honey or sugar syrup. If they did not die, the colonies were so weak they could not make a surplus of honey, so many of them made just enough honey to carry them through the winter.

Beekeepers who gave their colonies the proper care, produced a large quantity of honey and, in some cases, more than they did the year before. Good management through the first half of the year produced a normal crop of honey; otherwise there was no honey. The honey flow in the central part of Kansas lasted only three weeks. It was very intense at the beginning (June 15) tapering off to the end during the first week in July, with extreme high temperatures. In northeastern Kansas and the Arkansas river region a light honey flow continued throughout the remainder of the summer and terminated with a relatively strong honey flow from smartweed during the early fall.

In many instances, honey in the hands of beekeepers at the time of this writing is cleaned up. Many others are fast cleaning up their honey, but some are complaining of difficulty in disposing of their 1930 crop.—R. L. Parker, Manhattan, Kans.

Alabama The fall honey flow was better than usual in central Alabama, and most colonies gathered enough so that they will go through the winter without having to be fed. This is very fortunate, for if the fall honey flow had failed after the failure of the summer honey flow, heavy feeding would have been necessary.

The annual convention of the Alabama Beekeepers' Association was held in Montgomery on November 6 and 7. The attendance was small, but it was one of the most enthusiastic meetings we have had. Dr. E. F. Phillips was the principal speaker. His talks on bees for pollination and new methods of granulating honey were very interesting and should help the southern shippers to better serve the fruit growers with packages for the orchards.

Due to the general business depression and the short honey crop in some sections of the North, the demand for package bees for honey production may not be as great as it was in 1930, but the increase in demand for packages for pollination will no doubt consume the surplus. The prices of packages and queens have reached such a low level that very little if any

reduction will be made in prices for 1931. Due to the existing low prices some beekeepers are offering their outfits for sale, and others who are in good territory for honey production, are going in for honey production, abandoning the queen and package business.

Honey plants made a good growth during the fall months due to an abundance of moisture and the prospects for a honey crop in the black belt in 1931 are much better than they have been for several years.

Most of the honey produced in the state last season has been sold, the remainder will be entirely cleaned up before the 1931 crop is ready for market.—J. M. Cutts, Montgomery, Ala.

Michigan Fall rains have improved the prospect for clover, except in districts where the drouth prevented growth entirely during summer. In some areas, heavy plantings of alfalfa for seed improve the possibilities of a partial crop even in dry seasons. The alfalfa yields considerable nectar in Michigan, when it is too dry for clover.

Honey Sells Slowly on the General Market, But Good Sales Are Being Made Direct to Consumers.

Honey is moving slowly, of course, and at new low prices. The exception is in the case of the beekeeper who pushes retail sales, either from the roadside or through house-to-house salesmen. One such distributor has a crew of men working from 6:30 p. m. to 9 p. m. in the evenings, and reports good sales in districts where salaried people reside.

The sixty-first annual meeting of the Michigan Beekeepers' Association, held in two sections, one day at Saginaw and one day at Adrian, was an inspiring success. It was feared that the depression would keep many away, but an attendance of 100 at Saginaw and 125 at Adrian listened closely to E. R. Root and Miss Malitta Fischer, and unanimously voted to continue to support the American Honey Institute in 1931 on the same basis as last year, namely, $1.00 per ton subscription. Many new subscribers among commercial beekeepers paid their subscription in cash on the spot. It was the general concensus of opinion, expressed in open discussion, that the American Honey Institute is doing a remarkable work in honey publicity.

At Saginaw the convention met in the rooms of the Gase Baking Company, and were informed by the management that honey is being used in thirteen different products of that bakery, with increasingly satisfactory results. Mr. E. J. Gase, in welcoming the beekeepers, expressed the belief that the baking industry is rapidly becoming interested in honey, as it aids greatly in closely competitive markets by enabling the bakers who use honey to leave their goods on the counter longer without becoming stale, thus cutting distribution costs.—R. H. Kelty, East Lansing, Mich.

Pennsylvania Summer weather continued right down through the early part of November. During the week previous to Thanksgiving Day, the bees gathered water and there was considerable brood in many colonies. Since the honey flow from goldenrod and asters continued into late October, the continued warm weather has given the bees a good chance to ripen this late honey. At the same time they have used a lot of it for brood-rearing. Many colonies will go into winter short of stores but well supplied with young bees.

Partly because of the late brood-rearing conditions and partly because we are no longer in favor of cellar wintering, our bees were all packed outside in tarred paper and asphalt paper cases. If bees had been placed in the cellar before this cold spell, brood-rearing would surely ruin them before many weeks, while if they were left out in this severe weather, without protection, disaster would be just as sure.

The Hot, Dry Summer Failed to Kill the Young Clover and the Stand Is Fair.

Examination of new clover seeding reveals that there is a fair stand in spite of the unusually hot and dry season. Where clover and timothy were seeded together (a common practice here) the timothy seems to be all dead while most of the clover has survived. The clover plants are not as large as usual, and it is a question whether they will have root growth sufficient to pull them through the rigors of winter and next spring.

January 19 to 23 is the time for the an-

nual farm show at Harrisburg. For several years the honey exhibits at this show have been among the finest to be found in this country. This year the officers of the show and the officers of the Pennsylvania State Beekeepers' Association are making a special effort to have this the best of all the shows. This time the show will be quartered in a new building which covers nine acres of ground. Beekeepers are urged to send in honey for exhibition and to attend the annual convention which will be held at that time.

In recent months we have been using honey on our table, diluted with water to about the consistency of maple syrup. All members of the family like it better that way, and we are actually using more honey than formerly. It pours readily and without the sticky drip that is always objectionable when using thick honey. We have Mr. Hambleton to thank for this suggestion. It is worth a trial with our honey customers.—Geo. H. Rea, Reynoldsville, Pa.

Western New York Well, there is not much to write about this month unless I repeat about the same lingo as I have for the past couple of months about dry weather, poor prospects, foul brood, unsatisfactory demand for honey at too low a price, and several other depressing factors. But I prefer being an optimist instead of a pessimist.

Eastern Beekeepers Who Sell Their Honey Direct Are Experiencing an Increased Demand for Honey.

These conditions, bad as they may appear to the honey producer, are no worse nor as bad as they are in most other industries. In fact, there are definite indications of basic improvement in the beekeeping industry, especially for eastern producers, where the high cost of merchandising and distribution between producer and consumer can be largely added to the producer's income by means of retail sales.

There is but little doubt that the consumer demand for honey is increasing. We have made more retail sales here at home during the past few months than at any time since the war.

We are still having dry weather. Many farmers are drawing water for miles for their stock. There is no clover to be seen in the fields, and it would be almost a miracle if we should have a crop of white honey here in 1931. I wish I could meet all the readers of Gleanings at the League meeting at Toronto, Feb. 10, 11 and 12.—H. M. Myers, Ransomville, N. Y.

Southern Indiana There seems to be but little bee news in this locality. Owing to the fall honey flow, bees are in splendid condition for winter, being strong in bees and with plenty of stores in case they have hive room sufficient for both.

I have been watching closely the behavior of packed and unpacked bees. We have had a cold snap, the thermometer falling to eight above. After warming up, not a single dead bee was carried out of the winter cases as far as I could see. In front of each of the unpacked hives was a small handful of dead bees which was what I would call normal loss. But one feature puzzles me somewhat: among these dead bees there seems to be as many young ones as old ones. Just why this is so I can only guess at present. It may be that condensed moisture fell on them or that little groups got isolated. While the loss is trifling, there should be no young bees dead at this time of the year.

Demonstrating Honey in Grocery Stores Results in Increased Sales for Several Months Afterwards.

Owing to the general depression honey is not going as it should, but we have tried a plan, new to us, that is helping matters somewhat. We employ a lady demonstrator at the larger groceries each Saturday. She gives each caller a small sample of honey on a wafer and tells of the health giving qualities of honey. While this method of advertising is rather expensive, it pays well in the long run for the store sells honey from the effects of the demonstration for several months afterward. In the smaller stores we put in a window display for a week which invariably starts honey selling.

The excessive heat and drouth of last summer does not appear to have injured nectar secreting plants as far as I can see. Sweet clover appears to be in good condition as the abundant rains later in the season gave it new life.—Jay Smith, Vincennes, Ind.

Ontario This is being written on December 10, and the weather is mild and springlike. Very little rain has fallen since my last notes were sent in, and a shortage of water in country districts is general. One cold spell in the early days of this month, during which zero temperatures were registered for the day, has been the only real cold weather that we have had to date. Most of November was milder than the average, and during the middle of the month the bees flew freely on three different days. This should augur well for good wintering as all colonies had a good flight after all packing and feeding was finished.

At the Royal Winter Fair recently held in Toronto, the exhibits in general were away above the ordinary, and honey was no exception. The bulk of prizes for extracted honey were carried off by the western provinces, Saskatchewan taking the lead. There is no question but that they can produce honey out there which, for color at least, equals anything that the world produces. This is not reflecting in any way on body and flavor. The samples shown were extra good in any way they were examined. But there are many who prefer honey with a more pronounced flavor than the samples that took first place in the judging. I have in my possession a sample of the first prize honey, and it is very fine, indeed. It suits my taste very nicely, but others tell me that they like the flavor of Ontario honey the best—it is all a matter of taste.

Remarkable Endurance of Honeybees is Well Illustrated by the Survival of a Colony That Had Been Wrecked by Thieves.

In the November issue of Gleanings, an editorial entitled "The Winter Crew," deserves more than passing notice. I fear beekeepers do not think as much as they should about the wonderful insects they work with so often, and that it becomes a matter of "familiarity breeding contempt." The single bee in itself is a very tiny creature. Left alone it can not endure very much in the way of weather extremes, but with any considerable number of these creatures together, what a different story.

Every beekeeper can enlarge upon this theme from actual experience but now and then something out of the ordinary brings the matter more forcibly to his attention. In October, 1928, some vandals went into one of our yards during a cool wet spell of weather and they wrecked two colonies, leaving the combs scattered over the yard. They had been in search of honey, and as it was before the colonies were fed for winter, they happened to find the first colony they tackled almost devoid of honey. In this case, the combs were piled rather close together on the ground, and quite a number of bees clustered between them wherever they could find shelter. In the second hive they were more successful as it had been a colony built up from a nucleus and, as no super had been given, it was heavy with honey. They took away three combs of honey and left the other seven scattered around the wrecked hive. When I found them, they had been lying out in cold wet weather at least two days. In disgust, I left them as they were and went on to another yard to weigh the colonies up for winter feeding. On my way home the weather was warmer, so I stopped to clean up the combs that were on the ground to prevent a lot of excitement if it got warm enough for the bees to clean up the bit of honey that was left in the combs exposed. Not knowing just where to put the combs so I could carry them to the car, I decided to gather them up and put them in a hive together with some of the bees that were still alive, then attend to them later when doing the fall feeding. I gathered up enough combs to fill one brood-chamber and carried what bees were with the combs to the hive. I also scraped up bees that were in chilled clusters on the ground and put them on top of the combs.

A week later when the weather was warm again I went to this yard, and, of course, looked at once to see that these combs had not been robbed out. Imagine my surprise to find that one queen had been saved and that she was laying in three combs. I decided to feed them heavily and see what they would do after all they had endured. In 1929 they produced as much honey as any colony in that apiary. When I think of the wet bedraggled bees gathered from the ground and how they survived all this abuse, really it appears to me that nothing has more real vitality than the honeybees.

Don't forget the big convention in Toronto in February. Prospects are for a big crowd and program of unusual interest.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

The Old Guard I was deeply impressed with E. R . Root's "Last of the Old Guard," in the November issue. For 47 years I have been a keeper of bees. During all these years I have followed with admiration the works of those two masters, J. E. Crane and Dr. Miller, who have accomplished so much for the upbuilding of one of the great industries of our nation. The passing of these two great benefactors to the beekeeping world has left a void that no one can fill.—John Beavers, Portland, Ore.

Worker Bees from Worker Eggs A variety of honey bee, common in the south of this continent, but not in Rhodesia, can produce workers from worker eggs. A full account of experiments conducted by Mr. Rupert Jack, who is chief entomologist for the colony of South Rhodesia, will be found in a paper which was read before the Entomological Society of London on October 7, 1914. It was published in the Transactions of this society numbered XXI entitled "Parthenogenesis Amongst the Workers of the Cape Honey Bee: Mr. G. W. Onions' Experiments, by Rupert W. Jack, F. E. S., Government Entomologist, S. Rhodesia." Mr. Onions now claims that not only workers but queens are raised from worker eggs by this variety. In almost every other characteristic this variety of bee is identical with other South African species.—T. J. Needham, Salisbury, South Rhodesia, South Africa.

The Hive Tool The size of a hive tool and its condition is important to me or to any beekeeper who values his time and equipment. A beekeeper, like a carpenter, can not do work with poor or dull tools. I use a regular eight-inch hive tool, narrowing the blade so it will go between the wooden strips of a wood and wire excluder. I sharpen it with a long slope on a good flat stone on which it rests perfectly true. Then by standing it straight upright on the stone, I grind off the sharp edge until the edge is as thick as a 22-gauge sheet iron. This leaves two

Delivering honey in Finland at the rate of 12 miles per hour.

square edges on the end. By holding it at the proper angle and giving the proper tension to the wood, you can clean one side of a frame with one stroke of the tool and not cut into the wood. You can cut burr comb or propolis off the hive without any fear of damaging the wood. Try it. You'll find it fine when you have learned to use it.—W. S. Haynes, Dunedin, Fla.

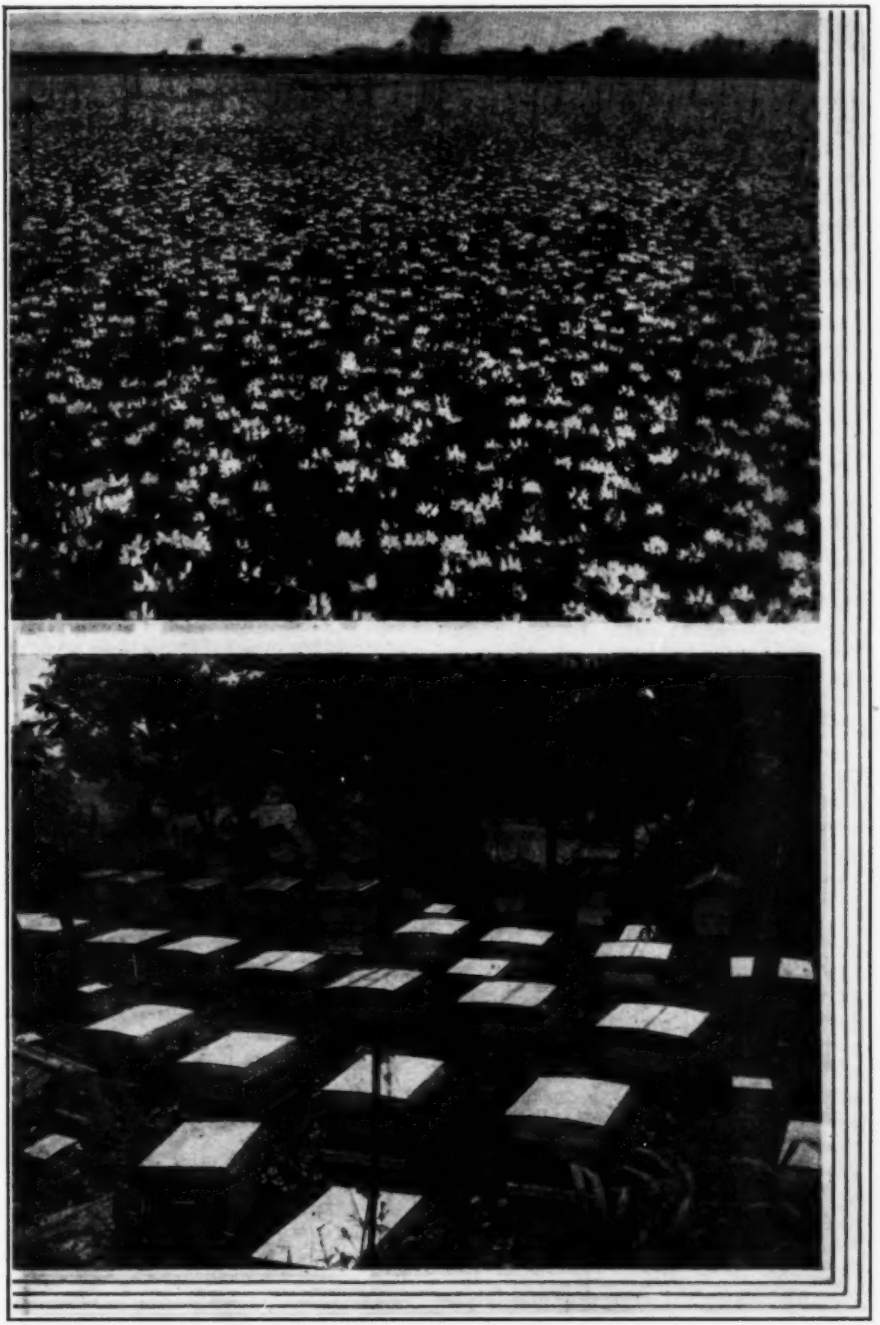
Bees Double Yield of Sweet Clover Seed

An instance of where the beekeeper and grower of sweet clover can co-operate to their mutual advantage was brought to my attention recently. Mr. P. J. McGlynn, a local beekeeper, decided to move his apiary during the past spring to the vicinity of sweet clover fields located a few miles north of Fargo. The owner of the property upon which the bees were located was so pleased with the increased production of sweet clover seed after the introduction of the bees that he declined to accept any rental charge for the location. According to the owner's statement, the bees were responsible for doubling the yield of sweet clover seed per acre over that of previous years. Incidentally, Mr. McGlynn the beekeeper received an average of 125 pounds of honey per colony which is a fair yield considering that this was a poor season for honey production. —J. A. Munro, Fargo, N. D.

Honey from Cactus Fruit

I am mailing to you today a small bottle of red honey, which my bees have gathered from the fruit of the wild native cactus. They get but small quantities of this, as they can get at the juice only after a bird has picked a hole in the fruit. I suppose it can not be called honey at all, though to me it has a very pleasing flavor. The fruit is ripe on the bushes, and worked on by bees, from August until January. A dozen or more bees can sometimes be seen packed into a single fruit. The juice, as gathered, is very watery, but when evaporated by the bees, it becomes very thick. When a bee is filled with the fresh red juice, those portions of the abdomen touching the honey sac, look as blood red as does a mosquito, when filled with blood. It was this which first attracted my attention to the fact that bees work on the cactus, as on taking the cover from a hive I saw many red bees. At first I thought they were red through some freak of nature, until I accidentally crushed one in trying to pick it up, and saw its color leave it as the red juice gushed out. Investigation led to the discovery of its source. On some of the dry washes and low hills the plant is very abundant, and I am sure keeps many a colony alive which would otherwise have starved. The picture shows how profusely the plant bears fruit.—W. G. Hewes, Corona, Calif.

Wild cactus in California. Birds puncture the fruit after which the bees gather the red juice.



BEEKEEPING IN JAPAN

Upper—Chinese milk-vetch (renge in Japanese) in full bloom in May—one of the best sources of honey in Japan. Lower—A typical Japanese apiary.

Just News

Editors

The Pennsylvania Beekeepers' Association will hold its annual meeting at Harrisburg, January 21-22.

A short course in beekeeping is being offered at Purdue University, Lafayette, Indiana, January 12-14, and at the University of Illinois, January 13-16.

The Michigan Agricultural College offers a short course in beekeeping February 11 to 13. Particulars regarding this short course may be had by writing to Prof. R. H. Kelty, East Lansing.

The 1930 production of honey in the Dominion of Canada is estimated at 30,978,735 pounds. The Province of Ontario is the largest producer, this year's output being about 14,000,000 pounds. Manitoba holds second place with an output of 10,110,000 pounds.

The winter meeting of the Ohio Beekeepers' Association is scheduled for February 4, 5 and 6 in conjunction with Farmers' Week at the Ohio State University. Quite an array of prominent speakers has been secured for the elaborate program.

The Kentucky State Beekeepers' Association will hold its annual meeting at Lexington on January 28. The topics for discussion will be along the lines of improved beekeeping methods and marketing. Prof. R. H. Kelty, professor of beekeeping, Michigan State College of Agriculture, will assist in the program.

The North Dakota Beekeepers' Association will hold its annual meeting in Room 308, Agricultural Hall, North Dakota Agricultural College, Fargo, on January 21 and 22. The topics for discussion listed on the program are of unusual interest and are to be handled by capable speakers, both from the ranks of beekeepers and specialists in the Agricultural College.

The annual short course for beekeepers will be given at the New York State College of Agriculture, Cornell University, Ithaca, New York, during the week of February 9 to 14, in conjunction with Farm and Home Week. The course this year will be on the management of bees from the point of view of securing the greatest value from them in pollination.

The meeting of the American Honey Producers' League at Toronto, Ontario, February 10-12, promises to be one of the best such meetings in the history of the League. Subjects of vital interest to the industry will be discussed by prominent leaders during the three-day session. The Ontario Beekeepers' Association, one of the largest in America, will hold its annual meeting in conjunction with the League meeting.

The Southern States Beekeeping Conference will be held at the Jefferson Davis Hotel, Montgomery, Alabama, February 18 and 19. Speakers of national reputation are accepting places on the program. The southern beekeepers collectively extend a most cordial and urgent invitation to all followers of the bee to join with them in their Montgomery meeting. Those anticipating the trip to Montgomery will facilitate the arrangements by writing to Prof. J. M. Robinson, Chairman of the Program Committee, Auburn, Ala.

A new revised and enlarged correspondence course in beekeeping is to be offered by the Extension Service of Iowa State College, Ames, Iowa. A radio supplement in the form of lesson discussion, will be started the first week in March. The lessons will be mailed to students a week in advance of the radio discussion so that they may be prepared to listen and take notes on the "Lesson-of-the-Air." Any one interested in this course can send for prospectus and enrollment blank to the Iowa State College of Agriculture, Ames, Iowa.

The chemists of the U. S. Department of Agriculture have recently examined about 300 samples of honey obtained from all the important areas of the United States and representing a variety of floral sources to determine the diastase content of natural unheated honeys. A wide variation was found, ranging all the way from 1 to 50 by the Gothe scale. As a rule, dark-colored honey had a higher diastase content than light-colored honey. Germany classes honey having a diastase content of less than 8.3 units as being adulterated. The work of the Department of Agriculture chemists thus shows that much pure floral honey produced in this country that has never been heated would be classed as adulterated in Germany where the diastase test for detecting adulteration is used.

Food Department

Malitta D. Fischer

Start with the Babies!

This year we are starting right for we are beginning with the babies. For January we will think of honey in terms of its application to the breast-fed baby, for February its application to the baby on substitute feeding, for March, to the youngster from two to four, for April from four to six, and by the end of the year we will have perhaps reached the diet for our own age.

Through the many years, babies, who were not breast-fed, had little chance for life. Then it was discovered that they could take cow's milk and the large percentage of infant mortality was reduced. However, cow's milk did not always agree with babies as did mother's milk. For many years physicians have been striving to find ways and means of preparing and modifying cow's milk to agree with babies.

Mother's milk is still the best for babies. In many cases mother's milk could be furnished more babies if the mothers would be more careful of their diet. While no definite research has been thus far carried on to show an increase in milk supply by mothers using honey in their diet, there are at least a half dozen leaflets which specialists have prepared recommending that expectant mothers and nursing mothers use the natural sugars; the sugars suggested are honey and maple sugar. That's an important point for beekeepers to remember for, if all expectant mothers and nursing mothers could receive their sugar requirements through the use of honey, how much it would do toward building stronger and better youngsters as well as a stabilized industry for beekeepers.

Honey is the original sugar. It is not a prepared food. The founders of honey were among the earliest inhabitants of the earth, the bees. It's a fascinating story to go back through the ages and find the many valuable uses honey had. Honey does not have to be sterilized to keep. It does not have to be subjected to extreme heat to become refined. It's already for use as is. Whether the mother uses a pail in a month or in four months, it will not develop mold as many of our commercial syrups do when half used and allowed to stand around in a warm place. Honey is its own preservative.

Mother's milk should be the source of nourishment if possible, but if for any reason the baby can not be nursed, cow's milk of a good quality should form the basis of his diet. Cow's milk differs from mother's milk, not only in the proportions of its food elements, but also in its character. Nature intended cow's milk for the slow and peculiar digestive process of the calf, with its series of four stomachs, while mother's milk, on the other hand, was intended for the more delicate organism of the infant with its single stomach. When mother's milk enters the stomach of the infant, it forms in soft, fine masses, readily permeated by the digestive juices and capable of easy digestion and assimilation. When cow's milk enters the infant's stomach it is coagulated into tough, curdy masses, upon which the digestive juices act with difficulty, and which are, therefore, harder to digest and assimilate. Furthermore, cow's milk contains a much larger proportion of curd than mother's milk. These are the principal reasons why a baby can not readily digest cow's milk alone.

Therefore, cow's milk must be changed or modified in such a way that it will resemble mother's milk, not only in composition, but in digestibility, before it can be a proper food for an infant. First, the cow's milk must be diluted with water to reduce the proportion of curd. Even then the diluted cow's milk is not like mother's milk, because it is lacking in certain important food elements. Adding honey supplies the right elements needed to make the diluted milk a complete food for the baby. Honey is ready for immediate digestion by the youngest infant. Very important indeed are carbohydrates. They create bodily heat and energy and this element is deficient in cow's milk as compared with mother's milk. Honey when added to cow's milk, supplies this deficiency and what is equally important, the carbohydrates in honey are in a form entirely free from starch. The function of digesting starch is not properly developed until the baby is about a year old. There-

fore, starch should not form any part of an infant's diet during the earlier months.

For an infant who may have no other source of mineral salts the substitution of sugar may become a distinct menace to health. The importance of this is apparent when we consider that the sugars in honey are fruit sugars—dextrose and levulose; the mineral salts are important ones—phosphoric acid, calcium, magnesium, iron, traces of iodine; the acids are valuable ones—citric, malic, lactic and formic. Government experts and nutritional authorities who are studying honey are of the opinion that substances of much importance and as yet not isolated may be present in the 3.73 per cent undetermined matter in honey—substances intended by nature as a food for the developing honeybee and utilized through the centuries as the most desirable sweetening agent by the human family.

Honey in the Diet of the Breast-fed Baby

Johnny, the eight-months-old youngster pictured here, was fortunate enough to have mother's milk until he was eight months old. At that time he was gradually switched to cow's milk so that, when he was ten days past eight months, he was entirely on cow's milk.

Johnny's mother used honey as her entire source of sweetening, thus Johnny was a honey baby from the start. When he was just a couple of days old, he was given boiled water between breast feedings, and at three months, orange juice diluted with honey flavored water was given him. Johnny would take all the honey orange juice given him. But as a beginning he was given one ounce of orange juice to three ounces of boiled water to which one-half teaspoon of honey had been added. Each month his orange juice allotment was increased so that at four months he received two ounces of orange juice, five months three ounces of orange juice and six months four ounces of orange juice. He is still getting this amount of orange juice diluted with double the amount of water or four ounces orange juice, eight ounces water and one teaspoon of honey.

His diet and weight cards are on file with the pedriatician who checked on him once each month, and show that his development and weight increases were right on the dotted line at the right time.

Johnny has never known what digestive disturbances are, he has never been known to wake up during the night except when he was a very small baby when he was awakened to have his 10 p. m. and 2 a. m. feedings. After the age of four months, he has never had a feeding after his 10 o'clock feeding, sleeping right through until 6 a. m.

He has never known what it is to be constipated. Constipation in infancy is

Johnny, the eight-month-old honey-fed baby who doesn't know what it is to be fretful or uncomcomfortable.

worthy of the physician's careful attention, for this symptom is often an indication of some fault in the diet which should be corrected, not only as a measure of relief from this annoying condition but to obtain a better-balanced food mixture. Constipation may easily be responsible for a slow gain in weight, restless nights and a fretful, uncomfortable baby. Honey is absorbed before it can ferment and cause diarrhea; the levulose serves to keep the bowels acting as they should. That is very important in the infant and that is another good reason why honey is particularly adapted as a milk modifier.

Next month I will give a series of formulas for the baby who gets substitute feeding at two months, and to save time, an outline follows of Johnny's feedings after he was placed on cow's milk.

At eight months and a half. (This was in August, so cod-liver oil was not included until later):

6 a. m.—8-ounce bottle of modified cow's milk.*

8:30 a. m.—After bath given 4-ounce bottle of honey orange juice mixture, 4 ounces of orange juice mixed with 8 ounces of water which had been blended with 1 teaspoon honey. This gave 12 ounces of orange mixture which was divided in three 4-ounce bottles, two being stored in the refrigerator for later use.

10 a. m.—8-ounce bottle of modified cow's milk.

12 noon—1 tablespoon of cooked mashed carrot (vegetables were alternated each day, one vegetable being included in this amount each day at this time. Variations, mashed spinach, mashed cauliflower, mashed onion. A little later, you will notice, vegetable amount was increased and combinations of vegetables given.)

1 p. m.—4-ounce bottle of honey orange juice and water (as prepared above).

2 p. m.—8-ounce bottle modified cow's milk.

4 p. m. to 5 p. m.—4-ounce bottle of honey orange juice and water (above).

6 p. m.—8-ounce bottle modified cow's milk.

8 p. m.—Water to go to sleep on.

10 p. m.—8-ounce bottle modified cow's milk. No food until 6 a. m. next morning.

At nine months and a half (Cream of Wheat was introduced in Johnny's diet at this age.)

6 a. m.—8-ounce bottle modified cow's milk.

8 to 8:30—4-ounce bottle honey orange juice.

10 a. m.—Cream of Wheat feeding: 1 tablespoon of Cream of Wheat cooked in 8 ounces of milk for 1 hour and then enough milk added to make mixture sufficient to fill 8-ounce bottle. 2 teaspoons honey added to flavor Cream of Wheat.

12 noon—2 tablespoons mixed cooked vegetables (combinations of carrots, celery and spinach; tomato, carrots and celery; cauliflower, onion and green beans, kale or beet greens, some times lettuce allowed to steam in vegetable mixture.)

2 p. m.—Modified cow's milk.

4 to 5 p. m.—Honey orange juice and water, 4 to 6 ounces.

6 p. m.—8-ounce bottle modified cow's milk.

8 p. m.—Water or honey orange juice.

10 p. m.—Modified cow's milk.

At ten months and a half (October—started on 1 teaspoon cod liver oil a day). Otherwise diet was exactly the same as at nine months. Such desserts as junket, gelatin, baked apple, apple sauce, prune sauce and prune whip, all of which were slightly sweetened with honey, were worked into each day's diet—that is, one dessert would be worked in after vegetable feeding at noon and 6 p. m. feeding. About 1 tablespoon of the dessert was used as a starter.

At eleven months and a half (November—2 teaspoons of cod-liver oil a day). Same diet as above so far as milk, orange juice, Cream of Wheat and vegetables were concerned. Rice pudding, tapioca pudding, stewed fruits, baked potato, macaroni and sphagetti, were worked into Johnny's diet. He had started to stand up at eight months and at ten was running around his play pen burning up a great deal of energy so that his carbohydrate ration needed to be increased at eleven months and a half.

All baked custards, rice puddings, tapioca pudding and stewed fruits are honey sweetened, not enough honey is used to make these combinations sweet but just enough to give them a pleasing taste.

Johnny is given sips of water out of his own cup every hour. He is also given zweibach to chew on, having had pieces of this dry toast since nine months old.

Cream of Wheat Feeding

Bring 8 ounces of milk to scalding point and add 1 tablespoonful of Cream of Wheat. Let cook briskly for four or five minutes right over flame, stirring to prevent mixture sticking or cooking over. Then let mixture cook in double boiler for one hour.

Stewed Fruits for One-year-old Youngsters

Let fruit simmer slowly until soft. Remove from fire and add just enough honey to remove sharpness of fruit tartness.

Apple Sauce

Wash cooking apples, quarter and core. Cook with skins on in just enough water to keep from burning. When soft, mash and run through strainer. Sauce should be thick like puree. Thin down with slightly warmed honey until sweet enough to satisfy your taste. Never peel apples before cooking, because much of the flavor and valuable mineral content is lost in so doing.

In feeding babies fruit sauces, the sauces should never be too tart or strong. It is better to dilute them with water.

The writer will be glad to hear from Gleanings readers who have had experience in using honey in infant feeding.

Happy New Year.

Suggestion to Provide Honey for Poor Families

Professor Russell H. Kelty wrote the writer a few weeks ago: "This year instead of contributing the usual amount of cash to the Community Welfare fund, another member of this department and myself decided to give honey, and so contributed 100 2½-pound cans to an organization which passed them out with Thanksgiving baskets. The idea came to me after hearing the loud praise of the honey as a gift, especially for poor families which invariably have undernourished children, that if the American Honey Institute might organize an effort among beekeepers to use this form of contribution whenever asked for money for welfare purposes, that the direct benefit to both giver and receiver might be increased."

I think this is a splendid plan and am passing it on to readers of Gleanings.

*Directions for making modified milk: Bring 26 ounces of pasteurized or certified milk to scalding point. Add 6 ounces of boiled water. Add 2 tablespoons mildly flavored honey and stir. Then pour into four 8-ounce feeding bottles.

Talks to Beginners

Geo. S. Demuth

Apparently the number of beginners in beekeeping will be much larger than usual this year. Just what factors are causing this increased interest in beekeeping at this time would be difficult to state. Some are looking to the keeping of a few colonies of bees as a means of increasing their incomes; others expect to find pleasure and contentment in the care of a few colonies of bees, and will be thankful to have a little honey for home use. The great volume of letters that come to this office inquiring as to the best method of making a start in beekeeping, or seeking information as to how to take care of colonies already in possession, indicate a keen interest in the bees themselves rather than expectations of immediate great financial gains. This is a much more wholesale state of affairs than if this great army of beginners had in mind only financial gains. One of the first requisites of financial success in beekeeping is the intense interest in bees and beekeeping equipment that usually comes to the worthwhile beginner.

Bees Afford Fascinating Study

No better advice could be given to beginners in beekeeping than that they carefully study every phase of the colony life of the bee. With modern hives, the beginner can soon learn how they live and carry on the work and life processes of the colony. Even during winter in the North, the beginner will be intensely interested in the manner in which the bees keep themselves warm enough though the temperature outside may be below zero. As spring approaches and the outside activities of the colonies begin, there is unfolded a great wealth of information before the eyes of the beginner to be had simply by a little observation. Later, when the early flowers begin to bloom, the hives may be opened to study the way the bees keep house and rear young. Every phase of the interesting social life of the honeybee can be seen by carefully lifting out and examining comb after comb from the brood chamber. No wonder, men, women, boys, and girls find fascination in studying this interesting insect!

Beekeeping Literature

There is a great wealth of literature on beekeeping. Books and essays have been written on this subject ever since man learned to record his ideas in written or printed words. In the older literature, there is much of the mysterious and fanciful regarding the life of the bee. Modern literature is eminently practical, too often overlooking the fanciful and poetic conception of beekeeping. However, modern literature is instructive, telling the reader what to do and how to do it, in the care of the colonies, leaving the reader to find the fanciful and poetic in the study of the bees themselves.

The least expensive of all beekeeping equipment is the literature. Much excellent literature can be obtained free, simply by writing to the Bee Culture Division of the Bureau of Entomology, Washington, D. C., asking for it. Many excellent bulletins on various phases of beekeeping can thus be had for the asking. In addition to bulletins published by the Bureau of Entomology, many states have published excellent bulletins especially adapted to conditions within the state. These can usually be had by writing to the state agricultural college or the state department of agriculture. Every beginner should make a collection of the available bulletins on beekeeping, and read them carefully during the winter months.

Those who can do so, will find it interesting and instructive to attend one or more of the many winter meetings of beekeepers that will be held during the next two months, several of which are mentioned on the page "Just News" in this issue. Also visiting a neighboring beekeeper often results in obtaining much information and inspiration that helps greatly in starting with bees.

Where Bees May be Kept

Some localities are better than others for honey production on account of the larger number of nectar-bearing plants in these localities. However, honey is being successfully produced in nearly every part of the country, and even in large cities. Bees fly for some distance in their search for nectar, often bringing large quantities of nectar several miles. The hives may be located in an out-of-the-way corner of the orchard, in a corner of the garden, in an attic, or on the roof of a building in the city. By keeping a gentle strain of bees, many keep colonies in small back yards in cities without causing any trou-

ble among the neighbors. Large apiaries are usually located in some out-of-the-way place in the country, the hives being located some distance from a highway or from fields where teams will be passing.

Bees are being successfully kept by all classes of people. There are professional beekeepers who devote their entire time to honey production, operating on a large scale. There are thousands of beekeepers in the country who operate their bees as a side line to add to their income, taking care of them at odd times. There are other thousands who keep only a few colonies, not for profit, but chiefly for pleasure. Many of these are professional men who find recreation in caring for a few colonies in the back yard. Many boys and girls are successful beekeepers, and many who have passed their three score and ten, still produce sizable crops of honey.

Studying Bees During January

In the South, beginners have opportunities on warm days to study their colonies even during the coldest part of the winter. In the North where the bees are confined to their hives most of the time by cold weather, there is not much opportunity for such study, yet it is possible to take a peek into the hive occasionally to see what the bees are doing. If they are in double-walled hives, the cover, chaff tray, and inner cover can be taken off quietly, in order not to disturb the bees, when the winter cluster can be observed by looking down between the combs.

If the weather is quite cold, the bees will be in a more or less compact cluster depending on the outside temperature, and those on the outside appear to be motionless until greatly disturbed. These bees on the outside are massed together in close formation to hold the heat withiin the cluster. Other bees within the cluster become active in order to generate heat sufficient to prevent the cluster from cooling too much. The colder the outside temperature, the more compact the cluster becomes, also the greater the activity within the cluster in heat generation. On warm days, the cluster may be shifted in order to envelop more honey so that the colony will not starve with honey just beyond the edge of the cluster. In well-packed hives or during warmer weather, the bees expand so that they occupy the hive almost completely, except possibly the remote corners. Bees that die of old age are pushed out at the entrance on warmer days, or if the weather is warm enough for the bees to fly, these dead bees are carried outside, thus keeping the hives clean.

If the colonies were properly prepared for winter last fall, they need no attention this month. Those who have recently come into possession of bees and do not know whether they are well supplied with honey, should lift the hive, or better, weigh it, then compare its weight with a similar empty hive in order to determine approximately how much honey is present. If colonies are found having only a few pounds of honey, they can be fed even this month by making syrup of two parts of sugar to one part of water by measure, placing this syrup while still warm into an ordinary friction-top pail having 25 or 30 small nail holes punched in the cover, then inverting the pail over the hole in the inner cover of the hive or directly on top of the frames in contact with the bees. In the latter case, the inner cover is left off and the frames covered with several thicknesses of newspaper or canvas having a hole the size of the feeder pail. Packing material, such as wheat chaff, planer shavings or an old blanket, should then be packed snugly around and above the feeder to keep the syrup warm. If the syrup becomes cold before the bees can take it all, the feeder should be taken off to warm it again. If feeding is necessary in very cold weather, the hive can be carried into a basement while the colony is being fed.

Colonies having only a few pounds of honey should be fed at once, giving enough syrup to add at least 20 pounds to the weight of the hive. Colonies that have 20 pounds or more of honey now will, in most cases, need more before they are safely through the winter and spring, but an additional supply can be given later when the weather may be warmer.

Obtaining the First Colony

The best way to start with bees in the South is to purchase one or more good colonies from a reputable local beekeeper. Sometimes good colonies can be purchased from careless beekeepers for considerable less money but in such cases, great care is necessary in selecting the colonies in order to get good ones. In the North, beginners can either purchase good colonies from local beekeepers or they can purchase empty hives, then order package bees from the South to be delivered and put into the hives in April or early May, depending on the locality.

Gleaned by Asking

Geo. S. Demuth

When Presence of Food-chamber is Most Important

Question.—How should the food-chamber be used when producing comb honey? When should it be put on and when taken off?—Chester E. Lynde, Massachusetts.

Answer.—The most important time to have a well-filled food-chamber on the hive is during spring when the bees are building up their strength previous to the main honey flow. Another important period is during late summer and fall, in localities where there is no fall honey flow, to insure plenty of food during the time young bees are being reared for winter. In producing comb honey, it is well to induce the bees to fill the food-chamber early in the season if possible, then take it off at the beginning of the main honey flow when the comb honey supers are put on. If the food-chambers are not completely filled at that time they can be tiered up on a hive not used for comb-honey production in order to have them completely filled to give back to the colonies after the comb-honey supers have been taken off. The queen usually lays some eggs in the food-chamber early in the season, but she is usually crowded out by early honey. When the food-chamber is taken off and tiered up on another hive, it does not matter if some brood is taken along. This will simply strengthen the other colony and better insure that the food-chambers will be completely filled during the main honey flow.

Number of Examinations During Season

Question.—How many times should the hive be opened and the colony examined during the year under ordinary conditions?—J. R. Morgan, Georgia.

Answer.—This depends upon the locality, the season, the kind of honey produced, and the skill of the beekeeper. In localities where there is little if any trouble from swarming, it is not necessary to examine the brood-chamber more than once or twice during the year; but in localities where swarming is bad, it is sometimes necessary to examine the brood-chamber every week or ten days for five or six weeks during the swarming season for swarm control alone. Some seasons more examinations are necessary than others, since swarming may be more troublesome, the bees may run short of stores on account of a long period of bad weather in the spring, or a good honey flow may make it necessary to make more frequent examinations. Where American foul brood is in the neighborhood, many beekeepers make two examinations per year for disease, but these examinations can be made in connection with some other manipulation. As a general rule, each hive is opened at least five or six times during the season, although the brood combs may not be examined each time the hive is opened. Experienced beekeepers usually make fewer examinations than inexperienced beekeepers.

Italianizing an Apiary of Black Bees

Question.—In order to Italianize an apiary of black bees is it necessary to change the queens of all the colonies at the same time?—Frank Derrenbacker, Virginia.

Answer.—Substituting an Italian queen for a black queen in each of the colonies at the same time would be a quick way to completely Italianize the apiary. However, this is not necessary if you desire to rear some of the queens yourself. You could requeen a few of the colonies early in the season, then rear queens from these Italian queens. While the daughters of the pure Italian queens you purchase would, in many cases, be mismated, their drone offspring would be pure Italians, since mating has no effect upon the drone offspring. Workers and queens reared from these mismated Italian queens would be hybrids, and drones reared from these hybrid queens would also be hybrids. Keeping these facts in mind, you can arrange to have most of the drones in your apiary pure Italians, even though the mothers of these drones may be mismated. Thus, within a few years, you could eliminate the black blood entirely from the apiary.

Closing Entrance During Winter

Question.—I stopped the entrances of my hives with wire screen and packed the hives side by side in a shed. I also darkened the entrance. My method must be wrong or the work must have been done too early. I had to remove the hives and put them back on their stands. On opening them I found about a pound of dead bees after being in storage about three days. What was wrong? The strong colonies were the worst.—Wilbur V. Black, Ohio.

Answer.—The entrances should not have been closed. When the bees discover that they are imprisoned, they become excited and attempt to escape. Within a short time a large number of bees will have worried themselves to death in their frantic efforts to get out of the hive. During very cold weather, when the bees are clustered away from the entrance, it would

be possible to close the entrance without causing such excitement, but as soon as the weather warms up and some bees venture to the entrance, they would begin to worry, usually with disastrous results. A small opening must be maintained throughout the winter, even though the weather is too cold for the bees to fly.

Cellar Wintering Compared with Outdoor Wintering

Question.—Which way do you think the bees would winter better here, in packing cases outside or in a cave dug in the side of a hill?—J. S. Abrams, Ontario.

Answer.—When every condition is right, such as the strength of the colonies in young bees, the quality of the stores, and the temperature and humidity of the air within the cellar, bees should winter better in the cellar than in packing cases outside in your locality. However, if everything is not exactly right for cellar wintering, they will usually winter better outside even in your latitude, provided the apiary is protected from strong winds.

Fermented Honey as Winter Stores

Question.—Will fermented honey be injurious to bees if fed during the winter or at times when bees can not fly?—A. M. Lyle, Virginia.

Answer.—Bees often winter fairly well when some of their honey is slightly fermented. However, it would not be advisable to feed fermented honey for winter stores. It would be much better to give frames of well-ripened sealed honey or to feed sugar syrup and save the fermented honey to be given to the bees during the spring when it would be used for rearing brood. Further fermentation in the honey can be prevented and the honey greatly improved by heating it to about 150° Fahrenheit, then putting it into ordinary screw-cap honey cans until ready to be fed.

Granulated Honey as Winter Stores

Question.—Is there danger of bees not being able to use honey that has granulated in the combs during winter when they may be short of water?—Walton F. Blohm, New York.

Answer.—Bees are able to exist during the winter on granulated honey and even on hard candy. It is not known just how they are able to do this, but it may be that they are sometimes able to obtain moisture that has condensed within the hive to help dissolve the honey or candy. Colonies wintered in a dry cellar on granulated honey or hard candy often become quite restless and will take water greedily. In such cases it would be advisable to place a feeder containing water on the hive. Where there is much granulated honey in colonies wintered outside, it would no doubt help matters to supply water in feeders early in the spring, in March in your locality, to assist the bees in using the granulated honey. Of course, when they can fly freely every few days they can usually obtain all the water they need.

Amount of Honey Needed for Winter

Question.—Will 20 to 25 pounds of honey in the hives October 1 be sufficient to carry the colonies through the winter without feeding? If so, will they need feed in the spring before the honey flow starts?—H. J. Matthews, Ohio.

Answer.—Under normal conditions 20 pounds of honey in a compact position where it is readily available for the cluster should be sufficient to carry a colony through until sometime in April in your locality. However, after that time, colonies having only 20 pounds on October 1 are liable to starve. It will be well to examine these colonies in March or early April to see if they have enough honey left to tide them over until early nectar is available or until you can feed them if the early nectar fails.

Moisture Within the Hive

Question.—Every spring, when I open the hive the first time, I find the inner cover dripping with large drops of water and some of the combs quite moldy. Is this because the bees are not properly prepared for winter?—F. A. Amos, Illinois.

Answer.—The moisture within the hive comes from the breath of the bees. Under some conditions, instead of passing out of the hive in the form of vapor, it condenses on coming in contact with the cold walls of the hive. The amount of moisture given off by the bees during any given time depends upon the amount of honey they consume. When the winter stores are poor and the bees are confined to their hive for a long period without a cleansing flight, they become restless and eat honey quite rapidly, and thus give off much more moisture than if quiet. Then if the walls of the hive are cold, this moisture condenses. Therefore, condensation of moisture within the hive can be prevented by making sure that the winter stores are of good quality so that the bees will not become restless when they are confined to their hives without a cleansing flight, and packing the hive to keep the walls warm enough that there will be no condensation from the small amount of vapor given off by the bees under normal conditions during the winter. Another way of preventing the condensation of moisture within the hives is to remove the wooden cover and replace it with a porous one, such as a piece of carpet or several thicknesses of burlap with six or eight inches of porous packing material above.

Bees, Men and Things

(You may find it here)

"Honey has sold well this fall, even though other business was poor. My crop is 85 per cent sold at this time, all being sold locally."—Geo. P. Rich, Pembina County, N. D.

"I had a good scare this year. The revolution broke out just as the main honey flow was to commence. At first, all traffic was stopped, but on October 18, I was still able to reach my mountain apiaries and put all things right."—Harold Madsen, Brazil.

"If some beekeeper in every town or city that publishes a newspaper would write a short article on honey and have it published, I think it would help the sale of honey wonderfully. Extolling the good qualities of honey in the bee journals helps but only a few people ever see or read a bee journal compared to the number who read newspapers."—A. C. Gilbert, Livingston County, N. Y.

"Does the queen influence the temper of the bees? I have noticed repeatedly that vicious hybrids become less vicious as soon as a gentle queen is introduced and before any of the new queen's bees have emerged. This does not look reasonable, but I have observed it so many times that I believe it is true although I am not certain. Has any other beekeeper noticed this?"—Jay Smith, Knox County, Ind.

"I would go A. N. Clark one better (page 772, December issue). I would eliminate the 1-lb. and 30-lb. tins and half-pint, pint, and quart glass containers. Let the 1-lb. glass jar, the 5-lb. pail, and the 60-lb. can be standard. A small screw-top can is also desirable for parcel post shipments. Why any modern producer would want to put good honey in barrels is difficult to understand."—E. S. Miller, Porter County, Ind.

"This last year was one of the hardest and worst we have ever known in the way of drouth and hardships with our crops and general farming operations. In other ways it has enabled us to do things we could not do before, as all the swamps, ponds and creeks, went dry, and people could get in to work where they never could before."—Leslie Smith, Van Burean County, Iowa.

"Why don't you fellows who are offering honey at 5½ cents or lower try feeding it to the horses, cows, hogs and chickens instead of the commercial feeds which are prepared with sorghum and cane syrup? It might even produce as much fat, milk or eggs as corn or wheat of the same value. Who knows? Our experiment stations should be getting some reports on this idea."—J. H. Sturdevant, Howard County, Nebr.

"The time is again here when delicious honey poured over buckwheat cakes makes part of our breakfast. But here in York County the beekeeper must use his honey a little sparingly since old man Drouth knocked out the honey crop as he did the corn crop and other farm crops in general. The bees here are going into winter quarters with plenty of stores, since we had a very good flow of aster during the month of October and late in September."—John H. Lohr, York County, Pa.

"Last spring before introducing some queens, I clipped them, then with a toothpick painted the back of the thorax of each with duco. I also put a coat of the stuff on their wings. On opening the hives during the summer I never had the slightest trouble finding those marked queens. The spot of red showed up like a red light. A single quick glance at a comb was enough to tell whether she was there or not. One could even spot her if she crawled off the comb to the walls of the hive."—Wainwright Evans, Talbot County, Md.

"We have in this locality a grand old man, Dr. R. J. Goss, Wilder, Vt., who keeps only two colonies for study purposes, but sells several tons of honey each year. This he purchases from beekeepers in Maine and New York, helping to use up their surplus. He does as much advertising for the honey industry as any of our best bee magazines. He lectures in Dartmouth College and other colleges, both in Vermont and New Hampshire, and occasionally in New York State. He also lectures at medical meetings and beekeepers' meetings as well as gatherings of any sort. He knows his honey and he sells it without depending on the other man to sell it for him. He has a son-in-law who is one of the leading specialists in a big hospital in Baltimore, whom he has interested in honey so that he is using it in the diets for his patients."—T. R. Martel, Windsor County, Vt.

BEES? WELL YES, I KEEP A FEW, BUT LETS TALK ABOUT SOMETHING ELSE.
REMEMBER—TO SELL HONEY-YOU HAVE TO TALK HONEY!
BEES? I'LL SAY I KEEP THEM! BY THE WAY DID YOU EVER TRY HONEY ON YOUR MORNING CEREALS? NO! WELL HONESTLY OL' MAN I FEEL SORRY FOR YOU. AND HONEY MERINGUE- ETC-ETC.
WM. OWYER

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CLOVER honey, also light amber, any quantity. Cloverdale Honey Co., Rock Port, Mo.

WHITE clover extracted honey. Write for prices and sample. Kalona Honey Co., Kalona, Iowa.

HONEY—New York State extracted white clover, 60-lb. can, $6.00. J. G. Burtis, Marietta, N. Y.

HONEY FOR SALE, any kind, any quantity. The John G. Paton Co., 217 Broadway, New York City.

OHIO'S finest extracted white clover honey. Prices on request. Sample, 15c. Geo. Morrison, Cloverdale, Ohio.

FOR SALE—Extra choice white clover honey, case or carload. Also amber. David Running, Filion, Mich.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

FINEST white clover honey in new 60-lb. cans and cases, 9c per lb. Sample, 15c. C. P. Jankowski, Gurnee, Ill.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey & Wax Company, Inc., 265 Greenwich St., New York City.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

GOOD HONEY—What offers for 34 light and 18 amber 60-lb. cans? Edwin Ewell, 115 Hawkins St., Ypsilanti, Mich.

FOR SALE—Three cars white and light amber in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Ill.

FOR SALE—A-1 diamond clear clover extracted honey, new crop, $9.00 per case, 120 pounds. Virgil Weaver, Moville, Ia.

CLOVER extracted. Case or carload. Oscar Schmidt, Rt. 5, Bay City, Mich.

CLOVER HONEY, satisfaction guaranteed. Leslie A. Davis, Grover Hill, O.

FOR SALE—White clover comb, 4¼x4¼x1⅞ sections. C. Holm, Genoa, Ill.

BUCKWHEAT honey in new 60's, 8c. Woodward Apiaries, Clarksville, N. Y.

FOR SALE—One ton clover honey, 6½c. John Sneper, Grand Island, Nebr.

FOR SALE—Extracted honey. Samples free. Jay Smith, Route 3, Vincennes, Ind.

CAR or less clover strained honey cheap. John Burghardt, Grand Island, Nebr.

CHOICE white clover extracted honey, any quantity. Jay Cowing, Jenison, Mich.

FOR SALE—White extracted clover honey; also amber. Alice Burrows, Oran, N. Y.

CLOVER-BASSWOOD blend and amber extracted honey. Geo. M. Sowarby, Cato, N. Y.

CLOVER-BASSWOOD blend and amber extracted honey. Leroy R. Bradley, Meridian, N. Y.

HONEY—Clover-basswood, 8½c lb. in 60-lb. cans; buckwheat, 7½c. Wendell Botsford, Horseheads, N. Y.

BUCKWHEAT comb, No. 1, per case, $3.00; light amber extracted in 60-lb. cans, 8c. F. J. Smith, Castalia, Ohio.

35,000 LBS. of white sweet clover honey in 60-lb. cans. What's your offer F. O. B. Alcester, S. Dak.? Fred Day.

BUCKWHEAT comb honey and car of extracted, also white and amber in 60's. H. E. Crowther, Jefferson, Ohio.

CHOICE clover and basswood blend extracted honey in sixties; also light amber. Leland Farnsworth, Davison, Mich.

CHOICE crystal clear extracted white clover honey. Also nice clear amber. Woodland Apiaries, Howell, Michigan.

FOR SALE—New York State light honey of finest quality, 9c per lb., in 60-lb. cans. Sample, 15c. H. J. Avery, Katonah, N. Y.

FOR SALE—5 cases (120 lbs.) white clover honey, 4 cases comb honey, also extracted in 10 and 5 lb. pails. H. Stuit, Hospers, Iowa.

NEW crop clover-basswood blend honey packed in new 60-lb. cans. Write for prices. Sample, 10c. Meyer Toom, Knoxville, Iowa, Route 4.

NEW crop clover-basswood honey in new 60-lb. cans, and 5-lb. pails; also buckwheat in kegs and 60-lb. cans. H. B. Gable, Romulus, N. Y.

FOR SALE—Michigan finest white clover honey, in new cans and cases. Sample, 15c. C. E. Glover, 1502 Stockbridge Ave., Kalamazoo, Mich.

HEAVY bodied, water-white sweet clover honey, in case or carlots. Sample, 10c. C. S. Engle, 1610 4th Ave., South, Fargo, North Dakota.

RASPBERRY blend, 60-lb. cans, 2 in case, $10.00; ton lots, 8c; 5-lb. pails, 12 in case, $6.00. Grant Watts, Boyne City, Mich.

FINEST quality clover-basswood extracted honey, packed in new cans and cases. Write for sample and prices. Gelser Bros., Dalton, N. Y.

EXTRACTED clover-basswood and buckwheat, 9c; slightly discolored clover, 7c, in new 60's. Merrill Bee & Honey Co., Muncy, Pa.

DELICIOUS honey, light sweet clover or the heartsease. Four 60-lb. cans, 9c a lb. 10-lb. pails, $1.50. Arthur Thayer, Superior, Neb.

FOR SALE—Nice quality clover-basswood honey. Case lots, 9c. Write for prices on large lots. E. E. Hutchins, 39 George St., Massena, N. Y.

OUR fifty-second annual honey crop now ready. A case or a car of Michigan clover extracted honey in new 60's. J. N. Harris, St. Louis, Mich.

FOR SALE—Clover-basswood extracted honey, case lots, 8c. Write for prices on quantity or car lots. Leroy C. Keet, 1003 Leray St., Watertown, N. Y.

HONEY FOR SALE—New crop clover-basswood blend, 60-lb. can, two cases; case lots, 8c; ton lots, 7½c. Write for sample. R. C. Cole, Newport, N. Y.

CLOVER-BASSWOOD blend in new cans and cases. Carlots or less, also buckwheat honey in kegs and cans. Sample on request. B. B. Coggshall, Groton, N. Y.

FOR SALE—Clover-basswood honey, white, in new 60-lb. cans. Case lots, 7¾c; ton, 7¼c; car lot, 7c lb.; f. o. b. Theresa, N. Y. A. A. French & Son, Theresa, N. Y.

FOR SALE—Buckwheat honey put up in 60-lb. tin cans, granulated; also bottled clover honey put up in all standard-size containers. F. M. Babcock, Fredonia, N. Y.

NEW CROP clover-basswood blend honey in new 60-lb. cans; also buckwheat in kegs and 60-lb. cans. Write for price on case or carlots. E. L. Lane, Trumansburg, N. Y.

FANCY white comb, $4.00 case, in carriers of 6 cases. White clover extracted or clover-basswood blend, 8½c; amber, 7c, in 60-lb. cans. C. B. Howard, Geneva, N. Y.

FOR SALE—Clover extracted honey, choice quality 60-lb. containers. Bees, 100 colonies. Correspondence. Bees guaranteed free from disease. M. Larson & Son, Gardner, Ill.

17 cases, 2 60's, choice sweet clover honey, well ripened, in new cans and cases, 7c; 2 cases dark honey, 6c. One or more cases, same price. C. F. Strahan, Linwood, Nebr.

FOR SALE—A-No. 1 white clover basswood blend extracted honey, 120 lbs. per case. State quantity wanted and I will quote price. Leonard S. Griggs, 711 Avon St., Flint, Mich.

RASPBERRY HONEY—In new 60-lb. cans, for 11c a lb. In 10-lb. cans, by mail or express postpaid, for $2.50 a can. Sample by mail, 20c. Elmer Hutchinson & Son, Lake City, Mich.

NEW CROP SHALLOW FRAME COMB HONEY, also section honey, nice white stock, securely packed, available for shipment now. Colorado Honey Producers' Association, Denver, Colo.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails our specialty. A. I. Root Co. of Syracuse, 124 Williams St., Syracuse, N. Y.

NO. 1 white comb, $3.50 per case; No. 1 light amber comb, $3.25 per case; heavy fancy buckwheat comb, $3.00 per case. Packed in carriers of 6 cases. Buckwheat extracted in 60-lb. cans, 7½c; in 160-lb. kegs, 7c lb. Carlton D. Howard, 50 Lafayette Ave., Geneva, N. Y.

NORTHERN New York clover-basswood, new cans, 8½c, case lots; ton, 8c. Some fancy comb, also 800 nicely filled individual sections. Buckwheat extracted, 7c. A. J. Wilson, Hammond, N. Y.

CLOVER-BASSWOOD blend, also straight buckwheat, and some mild buckwheat, that is blended with sweet clover. All of superior quality, packed in 60-lb. cans. Earl Rulison, R. D. 1, Amsterdam, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Colo.

No. 1 clover comb honey, $4.50 per case; No. 2 clover, and amber too dark, $3.50 per case; 25 case lots, 5% off; 50 case lots, 10% off. Clover extracted in 60-lb. cans, 9c. H. G. Quirin, Bellevue, Ohio.

HONEY—We sell the best. Comb in carriers of eight cases each—extracted basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-30 W. Huron St., Chicago, Ill.

COMB and extracted honey, chunk honey, extracted honey in 10 sizes of glass, 2½, 5, 10 and 60-lb. tins. Livest labels in U. S. or plain. Special combination sales case free with $25.00 and $50.00 orders. Write for free samples, prices and illustrated circular showing our packages. Griswold Honey Co., Madison, Ohio, U. S. A.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—All our honey-producing friends should take note of the following from the "Guarantee and Advertising Conditions" of Gleanings in Bee Culture: "We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller."

WANTED—Car-lot of white and extra light amber clover honey. Duvale Brown, Long Branch, N. J.

WANTED—Car lots of honey. State quantity, shipping point, and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—A car or less quantity of white honey, in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, Birmingham, Mich.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

FOR SALE

MAKE queen introduction SURE. One SAFIN cage by mail, 25c; five for $1.00. Allen Latham, Norwichtown, Conn.

HOFFMAN FRAMES—$37.50 per 1000. Standard and Jumbo hives, supers at sale prices, all new, large stock. Price list free. The Northern Bee & Honey Co., North St. Paul, Minn.

COMB FOUNDATION—Note these low prices on 20-lb. lots: Medium brood, 58c; thin section, 67c. Can furnish the new non-sagging foundation. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

BEST quality bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Assoc., Denver, Colo.

EXTRA fine water white extracted honey, 8½c; ton, 8c. Heavy fancy white comb, $4.00 per case. Buy here if you want some beautiful New York State clover honey. Howard Grimble, Holcomb, N. Y.

FOR SALE — Fine quality queen-mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M 53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

BEE SUPPLY SPECIALTIES

METAL EYELETS in your frames will stop the WIRE SAG which is responsible for most SAGGED COMB. METAL EYELETS, per 1000, 60c. Handy tool for inserting eyelets, 25c; postage, 3c per 1000. Superior Honey Co., Ogden, Utah.

BEES AND QUEENS FOR SALE

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease, or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

TESTED Italian queens, $1.00 each; 12 for $10.00. Ship now anywhere. D. W. Howell, Shellman, Ga.

SCIENTIFICALLY line-bred Italian queens throughout the year. HONEYVILLE QUEEN APIARIES, Rt. 1, Monrovia, Calif.

NUCLEUS at two-thirds 1930 prices; 500 to offer. No disease. Everything guaranteed. Crenshaw County Apiaries, Rutledge, Ala.

PACKAGE BEES—For April and May delivery. Write for price, guarantees, etc. The Crowville Apiaries, Rt. 1, Winnsboro, La.

1931 Caucasian queens from best imported breeders. Price list and circular on request. Lewis & Tillery Bee Co., Greenville, Ala., Rt. 6.

FOR SALE—105 colonies of bees and all equipment in California. Guaranteed no disease. Write J. B. Hohmann, Specht Ferry, Ia.

FOR SALE—TWIN-DEL QUALITY QUEENS and ROOT QUALITY BEEKEEPERS' SUPPLIES. Prompt service. W. G. Lauver, Middletown, Pa.

FOR SALE—30 colonies Italian bees equipped for extracted and comb honey. Supplies for 30 more. Guaranteed free from disease. J. Kennedy, Jamestown, Ala.

HOLLOPETER'S northern bred, hardy prolific Italian queens. Untested, one, $1.00; five, $4.50; ten, $8.00; 20, $15.00. Safe arrival and satisfaction guaranteed. J. B. Hollopeter, Rockton, Pa.

500 LBS. OF BEES flew away last year because too cold in North to receive them. Better have given them away, even though high bred Italians. Write for particulars. Dr. Stiles, P. O. Box 422, Houston, Tex.

TOWNSEND'S dollars go further. Listen: an oversize two-pound combless package of bees with untested queen, expressed, direct from one of my breeders in the South for only $2.50 each. Get on our books early. Seventy-five orders came too late last year and could not be filled. Write E. D. Townsend, Northstar, Mich.

25 COLONIES of Italian bees with full line of supplies for operating 100 colonies for comb and extracted honey. Certificate of inspection from authorized inspector will be furnished at time of sale. Would like good fishing and hunting ground near lake, or exchange for what? Ernest W. Peterson, Sandwich, Ill.

FOR SALE—100 10-frame 2-story colonies bees, Italian improved, at $6.50 each on yard, the buyer to pack and move them. Guaranteed free from disease. W. A. Wiley, West Point, Miss.

WE have what you want. Do not buy golden and three-banded Italian bees and queens before getting our package prices for delivery April 1. Write today. Cloverland Apiary, D. A. Coincon, Prop., Hamburg, La.

DROUTH and hot winds have killed all white clover for this year here. Must sell any part of 200 colonies of bees, or if you know of some place in Iowa unoccupied by bees where rain preserved white or sweet clover, write me particulars please. Will help buyer to carefully inspect bees. Delbert Lhommedieu, Colo, Iowa.

PACKAGE BEES—High grade 3-band Italians. Spring delivery. Better write for my prices on oversize two and three pound packages shipped in lightweight cages. Young queens, young bees. Special price on 2 and 3 frame nuclei on standard Hoffman frames. Health certificate, safe arrival and satisfaction guaranteed. E. R. Gooch Apiaries, Farmersville, Tex.

TOWNSEND'S dollars go further. Here is a good one never equaled before: an oversize 3-lb. combless package of bees with untested queens at only $3.00 each. Did you ever hear of such a bargain before and from one of the very best package shippers in the South. You pay more elsewhere. Get on the list early with your wants. Address E. D. Townsend, Northstar, Michigan.

GOOD TIMES ARE COMING! Governments and individuals are preparing to spend millions for improvements in 1931 putting many thousands to work. This money put into circulation will cause an increase in the demand for all products, including honey. Due to a short crop in many sections in 1930 the supply will be short. Honey should sell for a better price than in several years. Will you be ready to supply this demand? Begin now by preparing to bring your apiaries up to full strength with good quality package bees. Write for circular and price list. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

PECAN GROVE APIARIES at Marksville, La.—I am offering light three-banded Italian bees for the season of 1931. Prices to suit hard times. 2-lb. package with young untested queen, with frame of brood and honey, $3.00; 3-lb. package with 2 frames of honey and brood with young untested queen, $4.00. Can also furnish any other kind of package and any quantity. Am offering a 10-frame colony with a factory-made hive out of cypress, top and bottom, with beautiful Italian bees and young queen in colony, for $6.50. I guarantee full weight and safe arrival. H. H. Bordelon, Prop., Box 96, Marksville, La.

EXCHANGE

FOR EXCHANGE—Good used cans. Cash or honey. E. W. Peirce Co., Zanesville, Ohio.

WILL exchange comb and extracted honey for red and sweet clover seed, up to 50 bushels. H. G. Quirin, Bellevue, Ohio.

SITUATIONS WANTED

WANTED—Apiary position for 1931 season. Beekeeping experience. Milton Benner, 7032 S. Elizabeth St., Chicago, Ill.

WISH to correspond with man interested in honey production, where can work on farm, expand in bee business, Illinois, must be honest. David T. Miller, St. Charles, Ill., Rt. 2.

WANTED—Position with reliable honey producer. Age, twenty, single, three years' experience. Will exchange references. Okey Dawson, Sciotoville Sta., Portsmouth, Ohio.

WANTED—Position with honey producer. Four years' experience; age, twenty-one, single. Earl E. Rase, South Webster, Ohio.

SINGLE man, 22, with six years' experience, would consider taking bees on shares; but prefer working with or under the guidance of owner. Best of references. Carl Shrum, Quincy, Kansas.

MISCELLANEOUS

DRY-WEATHER vine. Honey finest produced, does not granulate. H. A. Ross, Evansville, Ind.

VITEX trees for sale, 30 to 36 inch trees, 50c postpaid. State inspected. Joe Stallsmith, Galena, Kans.

TWO bee men in southern package belt wish to buy large bee outfit in midwestern clover belt. Gleanings, Box 71, Medina, Ohio.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

Earl L. Baker, Albert Borning, Edwards Mfg. Co., Hazel-Atlas Glass Co., Herron & Stone, Jos. H. Hoehn, George Jaquays, Jessup Honey Farms, W. X. Johnston, W. H. Keyser, Edw. M. Klein, F. W. Lesser, Noel J. Loucks, Marsalek Apiaries, John G. Miller, A. W. Nations, F. B. Sherman, W. L. Spink, N. L. Stevens, E. H. Sturdevant, Warner & Jones, Henry Williams, Roscoe F. Wixson.

SUPPORT HONEY INSTITUTE

(Continued from page 32.)

than $1.00 for each beekeeper producing less than 2000 pounds of honey annually.

Contributions are being paid through the secretary of the Minnesota Beekeepers' Association. The good work of the Institute is being felt in many places and beekeepers are coming to the rescue, in some states. The Minnesota beekeepers feel that they should have a just and larger return for their support and so are requesting the Institute to circularize all dietitians and head nurses within the state.

The new officers are: Rev. Francis Jager, president; Earl W. Rood and J. T. Swanburg, vice presidents; and Dr. M. C. Tanquary, secretary-treasurer.—Bruce L. Morehouse, Morris, Minn.

U. S. HONEY MARKET REPORT

(Continued from page 5.)

beekeepers, have repacked their honey into 5 and 10 lb. pails, and have not only found it easier to dispose of, but have realized greater net returns. Price ranges are hardly holding steady, and a weaker tendency is developing over much of the country, aided by sales made by beekeepers anxious to get in some cash for their crops, regardless of the price. Demand from Europe is still very light, though a number of cars have been sold recently for shipment to England and Germany. Although prices for honey may seem low and discouraging, several beekeepers have written that they feel that they are no worse off than other producers, and where they have made special efforts to develop their local markets many are finding greater net profits than last year.

A BEEKEEPER TOLD IT

(Continued from page 29.)

keepers can fully appreciate. So he began work.

A puff of smoke into the entrance, considered hardly necessary, was passed by lightly. The outer cover was sent flying, the inner yanked off. A super jerked loose and slid off. Just about this time the harmless (?) insects commenced to act. Taken unawares the boy straightened, then doubled and "re-straightened" with altogether disastrous results. The whole four-story hive tipped over amid a howling storm of bees! The "whole way" was accomplished, "boldness and decision" seemed very evident. But only for a moment.

Talk about Charles Paddock, exclaim about Major Segrave, but be awe-inspired by this fellow's record. It was at least two hundred yards to the shelter of the nearest woods; he made it in nothing flat, perhaps a minus twenty. Anyway he probably couldn't have been seen en route. A frenzied thrashing about testified to strenuous efforts to be rid of the docile, harmless bees.

Boldness and decision! Yes, those bees weren't afraid of anything and decided so fast and so hard that they forgot all about John Burrougs.

And the aftermath—one badly stung (in more ways than one) helper, one bursted, not merely smashed, super of honey, a lake of dirt-filled, bee-crazy, sticky sweetness, and trouble for the farm hands for days to come. Read Burroughs, but remember hybrids havn't!—C. M. Isaacson, Middle River, Minn.

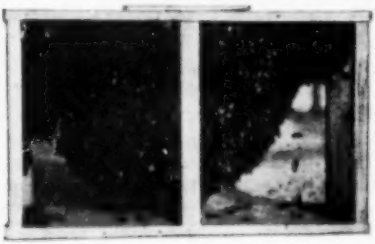
G. R. Hickok living at Lakin, Kansas, has writ the editors of Gleanins at length describin as how he visited Jay Smith and me and Ab. Bein as me and Ab are now regglars again in Roots lumber yard I haint no heart left to write nothin, and I might just as well let Hickok say anythin he wants to as for me to be recordin troubles on troubles and how wind is colder on a lumber pile than in any other place in No. Ameriky. He writ to the editors as follers:

Back at Lakin agin June 1st.

Dear Editors:

First thing I got to do is give you my excuse

(Continued on page 60.)



Combless Packages of Quality

on the dates you want them.

Pure Three-Banded Italians

Bred for gentleness and honey-producing ability.

Write for information and prices.

W. D. Achord, Fitzpatrick, Ala.

Extensive shippers for 18 years.

Package Bees and Queens for 1931

Pure Italian bees bred for business. Quality and service you can not afford to overlook. Prices in line with the times. Let us quote you on any number. Shipments when you want them. Satisfaction guaranteed.

Can furnish queens during winter months at $1.00 each. Prompt shipments.

Lewis Beeware and Dadant's Wired Non-Sag Foundation

York Bee Company

Jesup Georgia

Aeppler Display'O Wrappers

The Modern Merchant Believes in the Open Display of Goods. Have Every Section a Display Case.

WRAP COMB HONEY AND KEEP IT CLEAN

DISPLAY'O wrappers are the only mechanical wrappers on the market; require sealing on one end only. Automatic machines have done three-fourths of the work for you! A thing of beauty, practical and economical. Can be hand wrapped three times as fast as flat wrapped. For quantity work, use our machine. The cellophane used in DISPLAY'O wrappers is 50 per cent HEAVIER than the cellophane in competitive wrappers. Strength is a requirement of a GOOD wrapper.

PRICES.	Per 100	Per 500	Per 1000
For 4¼x1⅞	$1.10	$4.95	$ 9.80
For 4¼x1½	1.20	5.40	10.70
For 4x5x1⅝	1.20	5.40	10.70

All transportation charges prepaid to any address in the U. S. and Canada. Sample wrapper sent prepaid to any address for 5c. Wrap comb honey and pack in Corrugated Case at no greater cost!

Pack comb honey in corrugated cases and save money. In comparative **drum tests**, the wooden case and honey was completely damaged in one drop, whereas, honey packed in Corrugated Cases after twelve drops showed less damage to both case and honey!

Cut labor costs; no nailing of cases! Wrap comb honey and pack in Aeppler cases at no greater cost than wooden cases.

COMB HONEY PACKAGING MACHINE

The only practical comb honey packaging machine on the market. Manufactured to last a life time. Price $8.75 prepaid to any address.

C. W. Aeppler Co., Oconomowoc, Wis.

(Sole Manufacturers and Jobbers)

Package Bees, Queens and Orchard Packages

ALL ITALIAN STOCK

One customer reports 400 pounds from some of the packages shipped May 6. Get our hard-time prices.

THE MANGHAM APIARIES, Mangham, La.

Stevensons' Apiaries

Westwego, La.

We wish you a happy and prosperous New Year, and thank you for your patronage.

Price list and testimonials furnished for our excellent, select, golden queens and gentle bees. Satisfied customers in 34 states.

KERLIN LEGHORN CHICKS

40-page book free — Describes—quotes low prices. **"KerlinQuality"** Trapnested. Contest Winners. Greatest winter layers. Disease free. **Highest quality. Low cost. Free feed** with chick order. Big discount. Chicks—stock—supplies.

Kerlin's Poultry Farm, 218 Walnut Road, Centre Hall, Pa.

THE BEES OF RAPID VALLEY

(Continued from page 27.)

has won the majority of blue ribbons given on honey exhibits by the Western South Dakota Fair which is held annually at Rapid City. Her knowledge of beekeeping is explained by her being recognized to speak at the Women's Farm Congress when that group met in Sioux Falls some time ago.

Inconsiderate though it was, it is still a way of expressing Mrs. Blackwell's ability with bees, is the statement of a begrudging fellow who said, "That woman keeps her bees so strong they even come over and steal the honey from my two colonies."

So if one would know the romance of the bee yards and learn something of the life of the honeybee and the diligence that is required to produce thousands of pounds of honey in a practical way, then one could do no better than to follow Mrs. Blackwell for a day as she works among her colonies, treating each with individual attention, and understanding the different story that each colony has to tell. In that way of working and the joy she finds in it will be found the answer to the success that accompanies the keeping of the bees of Rapid Valley.

Rapid City, South Dakota.

70 BREEDS Chickens, geese, turkeys, and ducks. Pure-bred, hardy, high quality and most profitable. **Fowls, Eggs, Baby Chicks** and **Incubators** at **reduced** prices. America's great plant—since 1893. Valuable 100 page Poultry book and catalog FREE!
R. F. NEUBERT Co., Box 868, Mankato, Minn.

Rose Guide Free
COMPLETE book on rose culture, beautifully illustrating Dingee Roses, famous for 80 years. Lists over 500 roses and other desirable flowers for home planting. New low prices. It's FREE.
Dingee & Conard Co., Box 141, West Grove, Pa.

FREE ROSE BOOK
Tells how to grow famous "Roses of New Castle" and other flowers. Gold mine of garden news. New low prices for every sort of desirable flowering plant. Write for your **Free** copy today.
HELLER BROS., Box 118, New Castle, Ind.

KITSELMAN FENCE
Savings greatest in years on ***Fence, Netting, Steel Posts, Gates, Barb Wire, Paints, Roofing, Baby Chicks.*** All ***Copper-Bloom*** Steel Wire Fence, 99 92/100 per cent Pure Zinc Galvanized. ***Factory-to-You. WE PAY FREIGHT. 12-to-24 Hour Service.*** Easy Payments. Write for Catalog!
KITSELMAN BROS. Dept. 21 **Muncie, Ind.**
WRITE for FREE CATALOG

MASTODON
—the greatest money-making strawberry. Three quarts per plant—from July 'till Winter! $1,500 per acre for you! Avoid disappointment. Make sure you get the genuine—bred from original plants under exclusive contract with originator. Stahelin's original Mastodon is fully guaranteed.

Premier—The earliest early-bearer and an excellent shipper.
Latham—Raspberry. Sure investment. Will not winter-kill.
Fruit Trees—Apple, Pear, Peach, Plum, Apricot, Quince. All leading varieties including famous South Haven Peach. Low prices.
Shrubs—Decorative shrubs for every purpose, illustrated in our big new 1931 catalog. Spirea, Hydrangea, Hedges, Ornamental trees, Roses, etc. All guaranteed.

CHIEF
The earliest-bearing raspberry. Cash in on this new sensation! Finest grade. Whole story in our catalog.
RICHARED *DELICIOUS*
Fancy eating-apple. High market price. Perfect and healthy trees. Priced right.

FREE 1931 BARGAIN Catalog
New 1931 Catalog illustrates in FULL COLOR the finest plants ever offered. Strawberries, Raspberries, Blackberries, FRUIT TREES, Asparagus, Roses and Ornamental Shrubs. Full of VALUABLE INFORMATION and money-saving bargains. You need this book. Send now!
F. C. STAHELIN & SON, Box 10, Bridgman, Michigan

OLDEST BEST **POULTRY PAPER 12** BIG ISSUES **25c**
Paste or pin this ad on a letter with your name and address and mail it to us with **25c.** (stamps or coin) for the next **12** issues. **American Poultry Journal**
608 So. Clark Street Chicago, Illinois

Get Running's Bees
And Get Honey—They Satisfy
PACKAGES and NUCLEI
The kind WE use in our extensive Michigan Apiaries, where WE produce honey by the carload.
ALL ITALIAN STOCK
Service guaranteed. Stock bred for honey-getting and gentleness. PRICES RIGHT. Let us name you prices on any quantity.
Address until January 1
DAVID RUNNING, Filion, Mich.
After Jan. 1, Sumterville, Ala.

Package Bees

3-banded Italians

Nuclei, Queens and Orchard Packages

Are you satisfied with average yields, or do you want to harvest bumper crops?

One customer reports 39,000 pounds from 105 colonies, some wintered over some package bees, all headed with our queens.

Another averaged over 250 pounds from 35 colonies, mostly package bees shipped May 2nd. One of these packages stored 440 pounds.

Over 20 years with the bees. Write for prices. Let us quote you.

The Crowville Apiaries

J. J. Scott, Prop.

Winnsboro, La., Rt. 1

SOUR HONEY DEPT.

(Continued from page 57.)

fer not seein' you whilst in your town recent. Sure hated leavin before I'd seen you and Root, but circumstances alter cases.

Ol' Drone's letters provin' not jest satisfactory, I figgered best to go see him personal. Seemed like him and Ab was beatin' around th' bush. Mebbe tryin' t' work me agin some other feller, on th' western agency fer them Salge Powerfuls. Riled me jest a little. So I hitched up ol' Lizzie, an' set out to Mediny. Havin' gethered in twenty-five plunks as boot on a hoss trade, and collectin' an extry five as down payment on a piece of plowin', finances was easy.

I writ Jay Smith, over to Vincennes, that I was a comin' through, aimin' to look over his fancy foreign bees. Jay was expectin' me. When I walked in, havin' parked Lizzie as per usual, he gimme a glad hand. Likewise, havin' timed myself right, he couldn't do nothin' else only give me my dinner.

After palaverin' awhile, I offers to bet Jay that one uv my Great Western Greenhead Hossfly drones could lick any ten drones outen his Carneelyun bunch. He sort of miffed up.

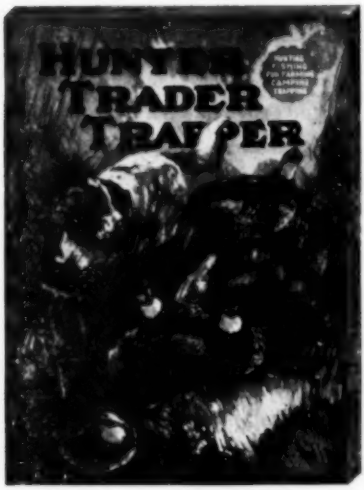
"Think I've been a mixin' my good bees with any of them dang Cypris wilcats?" he asks.

"I dunno," I answers. "But I'm willin' t' lay ten bucks on outcome uv a fight."

"I'll bet ye ten dollars you are a dang fool," says a feller who was sidin' with Jay.

"Alright," says I. "We'll jest let Mister Smith be stakeholder an' jedge, whether I am a

(Continued on page 61.)



A Great Bargain!

Hunt? Fish? Trap? Love the Outdoors?

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Here is your chance to get that greatest of all magazines for woodsmen—"HUNTER-TRADER-TRAPPER"—at the lowest possible bargain. Regular price is strictly $2.00 per year. By mailing us the coupon below you can get this great outdoor magazine for one year, The Farm Journal for one year, and Gleanings in Bee Culture for one year—all for $1.75. If you are a subscriber to any of these journals now, you can accept this offer, and your subscription will be advanced one year from date of present subscription expiration of any one of them.

Gleanings in Bee Culture, Medina, Ohio. Date .....

Enclosed is $1.75, for which please send me Hunter-Trader-Trapper, The Farm Journal, and Gleanings in Bee Culture, each one year.

Name .....

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SOUR HONEY DEPT.

(Continued from page 60.)

dang fool or not." We put up our dough, an' I knowed my expenses was took care of.

We went all round, lookin' at them hives an' bees. Jay he got mighty enthusiastic on th' subjec' uv what them new insecs kin do. I argyed jest enough to keep him keyed up. When th' sign was lookin' right, I banters him fer a trade, pullin' out uv my pocket a little cage holdin' some uv my greenheads. A queen, some workers an' a few big drones.

Naturly, they caught on right off. Even th' feller with Jay couldn't help but bulge out his eyes admirin' them babies. First thing anybody knowed, we'd struck up a bargain. I was carryin' off a cage full ov them Carneelyuns. An' also a box of cawcashuns which Jay says is th' goods an' no mistake. After I'd got outside th' gate, an' was all safe an' sure I stops and turns around.

"Oh, yes. I done like to forgot our bet," says I. "How about it, Mister Smith—don't I git that money?"

Jay he looks at th' cages I'm a carryin'. Then he gazes down at th' little box he's a holdin' in his hand. Sort of counts up his Greenheads, an' estimates my foreign bees which he'd give me in trade.

"I guess you haint such a danged fool after al." Sayin' that, he hands me two ten dollar bills an' walks back 'mongst his hives.

Then I goes back down to th' junk yard an' cranks up Lizzie, headin' on fer Mediny. I allers park my car in some junk yard. Camp in them places, too, of nights. No high jackers an' no sheriffs ever'd think o' botherin' her. She looks right to home amongst them other cars. It's safe and comfortable.

(His visit to me and Ab at home will appear in Feb. whether me or Ab is yet livin or not as is doubtful from the present temperatoor in the lumber yard. Me and Ab are allays solemner and religiouser in the winter and we sing over and over in the lumber yard that cheerin old hymn as begins Hark! from the tombs a doleful sound. Mr. Watts writ it. It fits to us in the winter, some ways, and specially right now.) OLD DRONE.

Red River Valley Apiaries

Package bees and three-banded Italian queens. I am here again to give you the same efficient service rendered last season. Satisfied customers in 26 states and Canada is evidence. Out of 1000 packages shipped last season I lost one half package. It will pay beekeepers and orchardists to get my prices before placing your order. Send for circular and prices.

J. G. Brunson · · Chicota, Texas

Day's Golden Queens & Bees Are the Best

Prices for 1931: Untested, any number, 75c each. These queens are still the big bright hustling kind—ones that are guaranteed to please you. Health certificate with each queen or package. Prices on packages will be furnished on request.

E. F. DAY, Honoraville, Alabama

Let Us assist you in producing that 1931 honey crop.

Write for our latest folders and prices on our SUPERIOR bees and queens. QUALITY, SERVICE and REASONABLE PRICES make it NECESSARY to get our folders.

N. B. Smith & Company
Calhoun, Alabama

You Can Succeed With Package Bees and Queens

Let us tell you how in our free booklet, "Combless Package Bees," which may be yours for the asking.

Root Queens and Bees will help to increase your honey profits. Write for prices and any beekeeping information you may desire. We want to help you succeed.

The A. I. Root Company - - Medina, Ohio

JENSEN'S

Package Bees and Queens

15,000 Lbs. of Bees in 1931

JENSEN'S Combless Packages shipped on sugar syrup will harvest a big share of the nation's honey crop again this year. Continued low honey prices mean that you must produce more honey for less money.

Increased per-colony production is the simplest, most economical way to do it. **JENSEN'S** package bees and queens assure high averages because they are produced right. Our method of running all package colonies two stories and always supplied with abundant stores insures ideal building-up conditions within the hives. Least influenced by adverse conditions of weather. Result:—No weak, undernourished bees for packages such as put up by some shippers claiming to have a vastly greater number of colonies than we have. But, who wants packages supplied from nuclei?

Our queens are reared by the "Doolittle System," modified to incorporate newer methods and special equipment, for large scale production, with time-tested basic principles from which no man can depart. Today's beekeeping practices are such that only the best of queens fulfill the requirements.

We take great pride in our Queen Business, and the uniformly satisfactory results in the use of our queens, as reported by our customers throughout the United States and Canada.

WE GUARANTEE: Pure mating of all queens and live delivery.
Full weight of live bees in packages on arrival.
Freedom from disease.
Prompt shipment and complete satisfaction.

PRICES:

One 2-lb. package with select untested queen	$2.75
One 3-lb. package with select untested queen	3.75
Untested queens, April and May delivery, each	1.00

The coupon below brings our quantity prices and early order discounts.
"We support the American Honey Institute. Do you? It's a privilege."

JENSEN'S APIARIES, CRAWFORD, MISS.

---------- COUPON ----------

Gentlemen:

Without obligation send me your descriptive literature, quantity prices and early order discounts. Quote me on the following: ( ) (2 or 3 lb.) packages of bees. ( ) queens.

Signed .....

Address .....

Latham's She-Suits-Me Queens

Line-Bred 3-Banded Italians

The small cut in the lower corner moved over 3500 queens for me in 1930. I expect it to move 5000 in 1931. You will wish some of those 5000.

There are good reasons why I have on my books the names of beekeepers who have bought queens from me for fifteen years. And these beekeepers advertise my bees. There are towns in New York State where my bees hold almost complete sway. In the last 15 years I have tried repeatedly to find better stock than mine, but have been unable to do so. For breeders to use in 1931 I have as fine a lot of queens as I ever owned. I personally do all the work about the rearing of my queens and my system has no runts.

"The queens I bought from you last year turned out very fine."

"The two queens I bought from you last season are fine queens, the best I ever bought in the last thirty years."

"The queen I received from you last September is a hustler and has the gentlest light 3-banded bees I ever handled. They are honey getters."

"Send me 3 queens as good as the ones I purchased from you last season. They are O. K."

"I was told by———you sell very reliable and high quality queens, and he has had fine results from your stock in the past few years."

From a Michigan inspector: "I have seen a great many different kinds of bees in my inspection work, but think your bees the best."

A Letter from Forest, Ontario

"Dear Sir:

"I have often thought of dropping you a line to compliment you on the excellence of your queens and bees. I have been more than pleased with their gentleness and industrious qualities. I have had more pleasure this season working with my bees than I ever had before and I have been in the bee business 48 years.

* * * *

"Sincerely,

"I. Langstroth."

Mr. Langstroth bought 100 queens in 1929.

This cut will appear monthly in Gleanings and American Bee Journal.

It's Hard On You

and

It's Hard On Us

But you can't help the low price you are getting for your honey, neither can we help it.

But we can help you with lower prices on package bees. Here they are right on a level with the price of honey:

	1	10	25	100
2-lb. package with queen -	**$2.75**	**$2.50**	**$2.40**	**$2.25**
3-lb. package with queen -	**3.50**	**3.25**	**3.15**	**3.00**

Here Is the Guarantee

We will ship your order promptly.
The goods are as good as can be had at any price.
That they will arrive in good condition.

Here Is Our Service

We will book your order **WITHOUT DEPOSIT** and at any time before shipment cancel any part or all of it without any obligation on your part. Why not book it **NOW**? If you can make a better buy we will cancel it.

The Stover Apiaries

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